

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1985

HEARING
BEFORE THE
SUBCOMMITTEE ON
ECONOMIC RESOURCES, COMPETITIVENESS,
AND SECURITY ECONOMICS
OF THE
JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES
NINETY-NINTH CONGRESS
SECOND SESSION

PART 11
EXECUTIVE SESSION
MARCH 19, 1986

Printed for the use of the Joint Economic Committee



U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1986

61-229 O

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

5841-27

JOINT ECONOMIC COMMITTEE

[Created pursuant to sec. 5(a) of Public Law 304, 79th Congress]

HOUSE OF REPRESENTATIVES

DAVID R. OBEY, Wisconsin, *Chairman*
LEE H. HAMILTON, Indiana
PARREN J. MITCHELL, Maryland
AUGUSTUS F. HAWKINS, California
JAMES H. SCHEUER, New York
FORTNEY H. (PETE) STARK, California
CHALMERS P. WYLIE, Ohio
DANIEL E. LUNGREN, California
OLYMPIA J. SNOWE, Maine
BOBBI FIEDLER, California

SENATE

JAMES ABDNOR, South Dakota,
Vice Chairman
WILLIAM V. ROTH, Jr., Delaware
STEVEN D. SYMMS, Idaho
MACK MATTINGLY, Georgia
ALFONSE M. D'AMATO, New York
PETE WILSON, California
LLOYD BENTSEN, Texas
WILLIAM PROXMIRE, Wisconsin
EDWARD M. KENNEDY, Massachusetts
PAUL S. SARBANES, Maryland

SCOTT LILLY, *Executive Director*

ROBERT J. TOSTERUD, *Deputy Director*

SUBCOMMITTEE ON ECONOMIC RESOURCES, COMPETITIVENESS, AND SECURITY ECONOMICS

HOUSE OF REPRESENTATIVES

DAVID R. OBEY, Wisconsin, *Chairman*
AUGUSTUS F. HAWKINS, California
JAMES H. SCHEUER, New York
CHALMERS P. WYLIE, Ohio

SENATE

WILLIAM PROXMIRE, Wisconsin,
Vice Chairman
STEVEN D. SYMMS, Idaho
MACK MATTINGLY, Georgia
JAMES ABDNOR, South Dakota

CONTENTS

WITNESSES AND STATEMENTS

WEDNESDAY, MARCH 19, 1986

	Page
Proxmire, Hon. William, vice chairman of the Subcommittee on Economic Resources, Competitiveness, and Security Economics: Opening statement.....	1
MacEachin, Douglas, Director of Soviet Analysis, Central Intelligence Agency, accompanied by Rear Adm. Robert Schmitt, Deputy Director, Defense Intelligence Agency.....	2

SUBMISSIONS FOR THE RECORD

WEDNESDAY, MARCH 19, 1986

MacEachin, Douglas:

Figures:

1. U.S.S.R.: Key economic indicators when Gorbachev took over	12
2. U.S. and U.S.S.R.: Procurement of selected weapons systems, 1974- 85.....	13
3. U.S.S.R.: Shares of GNP by sector of origin at factor cost, 1982.....	14
4. U.S.S.R.: Procurement of selected weapon classes.....	15
Joint prepared statement of Mr. MacEachin and Admiral Schmitt	24
Tables:	
1. U.S.S.R.: GNP by sector of origin at factor cost	77
2. U.S.S.R.: Value added in industry at factor cost	78
3. U.S.S.R.: Average annual growth of per capita consumption	79
4. U.S.S.R.: Growth of GNP and factor productivity.....	80
5. U.S.S.R.: Growth of industrial output and factor productivity.....	81
6. U.S.S.R.: Gross fixed capital investment.....	82
7. U.S.S.R.: Foreign trade by major region	83
8. U.S.S.R.: Estimated hard currency debt to the West	84
9. U.S.S.R.: Estimated hard currency balance of payments.....	85
10. U.S.S.R.: Selected indicators of agricultural output	86
11. U.S.S.R.: Freight turnover by transport mode.....	87

Response to Senator Proxmire's request for information concerning estimates of Soviet spending for military RDT&E..... 104

Response to Senator Proxmire's query concerning the Soviet cost to build the ABM system..... 120

Response to Senator Proxmire's query regarding the 1985 economic performance in China..... 122

Response to Senator Proxmire's question re China's nuclear capability..... 123

Paper entitled "China: Economic Performance in 1985," dated March 17, 1986, prepared by the Central Intelligence Agency..... 130

Response to additional written questions posed by Senator Proxmire..... 148

Proxmire, Hon. William:

Letter to William J. Casey, Director, Central Intelligence Agency, dated May 23, 1986, requesting information about Soviet weapons production, together with a reply from the Director, dated June 13, 1986..... 162

Schmitt, Adm. Robert:

Tables and figures reflecting Soviet commitment to military production, military equipment exports, and estimated value of military deliveries, 1974-85..... 19

Response to Senator Proxmire's query regarding CIA and DIA estimates of Soviet military procurement costs..... 102

IV

	Page
Schmitt, Adm. Robert—Continued	
Response to Senator Proxmire's question regarding the share of the Soviet GNP devoted to the military.....	111
Tables reflecting value of Soviet military exports.....	112-114
Response to Senator Proxmire's query concerning Soviet technological lag.....	115
Response to Senator Proxmire's question regarding the shortage of critical skills in the Soviet Union.....	120

POINTS OF INTEREST

WEDNESDAY, MARCH 19, 1986

Soviet Union	2
Agencies in substantial accord	3
Gorbachev's inheritance.....	3
Emphasis on productivity	4
Economy in 1985.....	4
1986-90 economic plan	5
Low investment target	6
1986 plan.....	6
Implications for defense	6
Defense slowdown.....	7
Politics of modernization	8
Reengagement with the United States	8
Economic benefits from arms control.....	9
Prospects for success.....	9
Personnel changes.....	10
Defense trends	16
Procurement.....	16
New generation weapons.....	17
Plant expansion.....	18
Industrial modernization	18
Military spending.....	19
Increase in Asian population	88
Gorbachev's long-term goals	89
Exporting revolution.....	91
Military spending and capabilities	92
Economic reform	92
Inconsistencies in plans	94
Priority of the defense industries.....	95
Military strength and economic strength.....	95
Test in 2 to 3 years.....	96
Arms control	96
Significance of 1985 economic performance	97
Plan for 1986	98
Energy	99
Oil prices and exports.....	100
DIA energy assessment.....	101
Military spending	101
CIA and DIA estimates compared.....	102
Military spending and capabilities	103
Military R&D	104
Military spending and capabilities	110
Explanation of slowdown	110
Military burden	110
Military exports.....	112
Possible reductions in aid to Communist countries.....	114
Soviet technological lag.....	115
Military burden and economic prospects.....	117
Shortages of critical skills	119
Strategic defense initiative.....	120
China	121
1985 economic performance.....	121
United States-Chinese trade.....	122
Chinese military spending.....	122
Nuclear weapons	123
Defense policy	123

	Page
China—Continued	
Complaints over retail food prices	123
Corruption	124
Administrative expenditures.....	124
Pause in economic reforms.....	125
Chinese-Soviet relations.....	125
Transfer of military technology to China.....	125
Transition to more market-oriented system	126
Central controls.....	128
Grain production	128

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1985

WEDNESDAY, MARCH 19, 1986

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON ECONOMIC RESOURCES,
COMPETITIVENESS, AND SECURITY ECONOMICS
OF THE JOINT ECONOMIC COMMITTEE,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room SD-342, Dirksen Senate Office Building, Hon. William Proxmire (vice chairman of the subcommittee) presiding.

Present: Senator Proxmire and Representative Scheuer.

Also present: Richard Kaufman, general counsel.

OPENING STATEMENT OF SENATOR PROXMIRE, VICE CHAIRMAN

Senator PROXMIRE. The subcommittee will come to order.

Gentlemen, we welcome you. I want to say first that these hearings have been conducted for a number of years. We've found that the sanitized version of the hearings have been extraordinarily useful. We've had, I think the most constructive comments about these hearings of any hearings I have conducted. I have been in this Senate now almost 30 years, and I have been conducting hearings in the Banking Committee and the Appropriations Committee and elsewhere, including many hearings before the Joint Economic Committee. But these hearings have been especially useful and helpful, after they have been sanitized, for the academic community, the press and Congress and I think they represent a real contribution to an understanding of our national security problems and our military problems.

I am going to have to leave in about half an hour or so and go to the floor for a few minutes, so we will call a recess at that time, and then we will resume in about 15 or 20 minutes after that. It will take me about that long.

Last year I wrote to the heads of the CIA and the DIA and requested that the next Joint Economic Committee hearing the agencies appear together, and that there be some attempt to coordinate their views.

I am very pleased that the two agencies are appearing together and that they have submitted a joint statement. As I understand it, the two agencies agree on everything in the statement with a few exceptions that are noted. If this signals a new era of cooperation and consensus within the intelligence community, it is most welcome. All of us in policymaking positions in either branch of Gov-

ernment are not smart enough to make correct decisions without correct information. We need to have the facts as best they can be determined, no matter how unpleasant or inconsistent with personal views and biases.

Of course, we must leave room for honest differences of opinion and interpretation. We are, after all, one government and we ought to be totally candid when there are differences about reasons and underlying assumptions. I am happy to say that one of the things that distinguishes us from the Soviet Union is our ability as elected representatives to discuss these matters with officials from the intelligence agencies in executive session, and to make much of the material public. We obviously have secrets that should not be revealed, but Soviet obsession with secrecy impedes both their economic performance and their military performance. Congressional proceedings such as this one are an asset to the United States because they help inform Congress and the public.

I would like to welcome our witnesses this morning—Rear Admiral Robert Schmitt, Deputy Director of the Defense Intelligence Agency; Douglas MacEachin, Director of Soviet Analysis at the Central Intelligence Agency. You have, as I understand it, one statement.

However you gentlemen would like to present it would be helpful. I would ask you to identify your assistants, if you would do that.

STATEMENT OF DOUGLAS MacEACHIN, DIRECTOR OF SOVIET ANALYSIS, CENTRAL INTELLIGENCE AGENCY, ACCOMPANIED BY REAR ADM. ROBERT SCHMITT, DEPUTY DIRECTOR, DEFENSE INTELLIGENCE AGENCY

SOVIET UNION

Mr. MACEachin. Mr. Chairman, let me first express my personal pleasure at having the opportunity to testify before this committee. My associates, Mr. Whitehouse on my right is chief of the division that examines Soviet economic performance. Mr. Swain, is the deputy chief of our defense economic issues group, and probably our most competent methodologist. Mr. Young, is the Chief of Defense Industries Division of the Defense Economic Issues Group. On the end, Mr. Lee Zinser is an economist in the China Division of our Office of East Asian Analysis.

Rear Admiral Schmitt, of course.

Admiral SCHMITT. I am also pleased to be here before this subcommittee to testify today. I do take constructively your direction last year to get together with the CIA. I think it is a very, very positive step in our analysis of the Soviet economy.

Mr. Jerry Weinstein to my right is head of our Strategic Economic Section, and I will let him introduce his team.

Mr. WEINSTEIN. Mr. Ray Lawler is here, head of Worldwide Military Production Branch in DIA.

Senator PROXMIRE. Gentlemen, proceed.

AGENCIES IN SUBSTANTIAL ACCORD

Mr. MACEachin. Yes, sir. As you know, Mr. Chairman, in the prepared statement we submitted, our two agencies are in substantial accord, particularly on the overall trends in Soviet economic performance and in military force trends.

In my remarks, I would like to touch on three areas with regard to the Soviet Union. First, a brief review of the state of the economy when Gorbachev took over.

Second, Gorbachev's game plan for modernizing the economy and for resource allocation, particularly in defense.

And third, our evaluation of the new General Secretary's prospects for success, part of which would include what we think are the implications for his position and program of the developments at the recently completed Party Congress.

Admiral Schmitt will then address, in some detail, Soviet military spending.

Finally, I would give our assessment of the trends in the Chinese economy and economic reforms that Beijing has been implementing.

GORBACHEV'S INHERITANCE

Starting with Gorbachev's inheritance. When he took over last March, he inherited an economy that had experienced a decade of slowing growth, punctuated by harvest failures, labor shortages, and absolute decline in productivity.

I think you have a figure, the first figure in your package which shows the key indicators as they were at the time Gorbachev moved into the position of General Secretary.¹ As we have described in our testimony over the past few years, better weather and increased labor discipline helped improve economic performance somewhat after 1982, but the antiquated nature of the U.S.S.R.'s industrial base made sustained improvements unlikely. Gorbachev's predecessors themselves had argued that without an acceleration of productivity growth, the U.S.S.R. would have difficulty meeting the resource demands for defense, investment, and consumption. The Soviet leaders were essentially worried that the U.S.S.R. would continue to trail the West in military technology. In fact [security deletion] Soviet military authorities have argued that without industrial modernization, the Soviet Armed Forces would find it harder to meet their military responsibilities. In contrast to the economy, the powerful military that Gorbachev's predecessors left him has been built up through the massive commitment of the nation's best resources in the past two decades.

From 1965 through 1975, for example, Soviet military expenditures increased by nearly 50 percent in real terms. The growth slowed in the mid-1970's, but at the very high level that had been achieved by then, and the fact that the Soviet sustained it, enabled them to procure massive quantities of weapons, as is shown in the second figure in your package.

¹ See fig. 1, p. 12.

One example from figure 2,² at the top, will show you that over the last decade, Soviet forces received roughly three times as many intercontinental ballistic missiles as did United States forces.

Similar sweeping gains occurred in the Soviet conventional forces as the U.S.S.R. added large numbers of more sophisticated fighters, bombers, and tanks.

In sum, Gorbachev's predecessors left him with a powerful military force and a sputtering economy. One of his primary challenges, therefore, has been to find the resources to accelerate economic growth without surrendering the military gains of the past 20 years. In fact, since he took over, he has indicated that he intends to wrench the economy onto a higher path of growth. To this end, he has focused his efforts squarely, and in our view correctly, on increasing productivity.

EMPHASIS ON PRODUCTIVITY

His first and most accessible target in this campaign to boost productivity was what he dubbed "the human factor," and this is what has led to the campaigns for increased labor discipline, and against corruption and alcoholism. Some of these efforts actually were begun under Andropov, and, although they were scaled down during the Chernenko interregnum, they have yielded positive results.

Soviet press statements, for example, indicate that there has been a marked decrease in absenteeism, fewer industrial accidents, and less shoddy work.

Gorbachev has also replaced a great many senior economic managers with people more receptive to his policies and shifted several top officials with proven track records in the defense industry to key civilian posts.

In an attempt to weed out bureaucratic inertia, he has begun to push through organizational measures, including the establishment of a high level bureau to oversee civilian machinery production. Gorbachev has stressed that the success or failure of his economic program, in the longer term, will depend on fundamental improvements in the country's production base or, in his own words, "the structural transformation of the economy."

In laying out his program last summer and fall, he proposed doubling the retirement rates of capital stock to accelerate the replacement of obsolete capital by more efficient machinery; modernizing the nation's stock of plant and equipment so that by 1990 a third of it, including up to half the machinery portion is new; increasing capital investment in civilian machine building from 1986 through 1990 by 80 percent over that in 1981 through 1985.

ECONOMY IN 1985

At the time he was putting forth his blueprint for reviving the economy during the latter part of the 1980's, the Soviet economy was turning in another lackluster performance. Shrinking farm output held GNP growth in 1985 to about 1.5 percent for the second straight year. Meanwhile nonfarm output rose by about 2.5

² See fig. 2, p. 13.

percent last year, lead by a nearly 3-percent increase in the industrial output, a figure roughly comparable to the 1983 and 1984 pace.

Nonetheless, despite the relatively slow growth in the economy overall, Gorbachev could take some satisfaction from the 1985 results. Through a combination of factors, a year that started very badly turned into one that was at least respectable. For example, improved weather after the first quarter eased pressure throughout the economy. The Soviets encountered a similar situation during 1981, but did not achieve nearly the same rebound. Gorbachev could attribute at least some of the turnaround—how much it is impossible for us to measure—to his vigorous campaign to cut alcohol consumption and increase worker discipline. But the programs and decisions on resource allocation in 1985 resulted from policies that predate Gorbachev's selection as the General Secretary, although as a Politburo member, he certainly participated in the formation of these policies.

During 1985, for example, growth in investment was 2.7 percent. It was up from 1.9 percent in 1984, but far below what would be necessary to carry out a modernization program of the scope and magnitude which Gorbachev has outlined since last spring.

In the same vein, whatever Gorbachev's intentions were, a policy of increasing the availability of consumer goods as a spur to labor productivity was not evident in 1985. In particular, shortages of sought-after goods and services continued, limiting growth of per capita consumption to less than 1 percent, half the rate achieved in 1984. Supplies of some quality goods, for example, meat showed little increase over 1984 levels. As a result, queues and rationing continued in some areas in 1985.

While we have a fairly good sense of consumption and investment trends in 1985, our information on Soviet defense acquisitions is still too incomplete to support a defense spending estimate for 1985. What is certain is that the Soviets continued their broad-based modernization of military forces. For example, in 1985, they augmented the strategic nuclear strike capability by [security deletion] beginning to deploy the new mobile SS-25 ICBM's. At the same time, they have added new units of both the Typhoon and Delta-4 classes of submarines.

1986-90 ECONOMIC PLAN

Turning now to the 1986 to 1990 economic plan, the draft economic guidelines that were issued in early November and set ambitious targets. GNP is slated to grow at roughly 3.5 percent per year from 1986 to 1990 and at about 5 percent from 1991 through the year 2000. These rates have not been achieved for more than a decade.

Industry, agriculture, and other producing sectors will be hard-pressed to meet the targets of this Five Year Plan. According to the plan guidelines, investment is slated to rise by only about 3.5 to 4 percent a year, the same as GNP. This investment target is the same as the rate for recent years, but it is clearly, in our view, insufficient to meet Gorbachev's stated goals for increasing investment in the machinery sector, while at the same time taking care

of other sectors such as energy, transportation, and ferrous metallurgy.

To meet the planned goals, the guidelines call for sharp increases in productivity, increases far greater than those achieved during the past two Five Year Plans, and also establish what seem to be unrealistic goals for energy and raw materials.

LOW INVESTMENT TARGET

The reason for the low investment target in the 1986 to 1990 Five Year Plan is unclear. The fact that Gorbachev remanded the Draft Guidelines at least three times before they were issued, and that no investment data other than the overall growth target were given suggests that the issue of resource allocation was a difficult one.

Gorbachev may have encountered foot-dragging by planners and ministers—many of whom have been or may soon be replaced—who were worried that the economy could not produce the investment goods needed to meet Gorbachev's modernization goals and at the same time reach targets for military procurement and output of consumer durables.

1986 PLAN

Whatever the reason for the low investment goal given in the published 1986 to 1990 guidelines, Gorbachev made sure that investment for modernization was on center stage when the 1986 annual plan was issued 3 weeks later. The 1986 growth target for new investment is 7.6 percent, twice the average annual rate specified in the plan for 1986 through 1990 as a whole.

Within the total for new fixed investment, investment in civilian machine building is slated to grow by roughly 30 percent. Moreover, in apparent contrast to Gorbachev's previous statements that the share of investment in energy would be held constant, the 1986 plan calls for investment in oil extraction to grow by 31 percent, in the coal sector by 27 percent, and in the electric power sector by 24 percent.

IMPLICATIONS FOR DEFENSE

I would like to turn to the implications of this for defense and note that Gorbachev's plan for refurbishing the country's industrial base through the massive replacement of machinery and equipment as reflected in the ambitious 1986 investment target, will certainly involve increased competition with the defense sector for many of the resources used in the production of weapons. The competition will be particularly intense in the machinery sector, which has traditionally borne large portions of the defense burden.

We estimate that in recent years about a quarter of machinery output has been going to the military. The competition for resources used in machinery production will involve the use of factory capacity, basic materials, and labor resources. For the short run, competition for factory floor space and investment has been mitigated by the substantial expansion and upgrading of defense industrial plants that has taken place since the mid-1970's.

The first indications of comprehensive programs to modernize weapons production facilities occurred [security deletion] in the very early 1970's, and an industrywide effort to re-equip weapons assembly plants accelerated in the late 1970's. As a result of this investment, we believe almost all of the production capacity required to support the Soviet force modernization over the next 5 or 6 years is in place. The high targets for civilian machinery, however, will spur competition for labor and material inputs used in the production process that could cause some tradeoffs at the margin between military and civilian production. High quality steel and energy, for example, will be in great demand to manufacture machines needed for both industrial modernization and weapons production.

The competition for human resources could even be more intense. Shortage of skilled workers persist in the U.S.S.R. in several areas critical to both defense and modernization. For instance, systems analyst, and to a lesser degree, computer programmers and some kinds of engineers and skilled machinists.

On balance, we believe that the Soviets will move ahead with most of the military modernization that the intelligence community has projected through the 1980's, with the massive investment already made in defense production capacity and the momentum of the ongoing military programs weighing heavily in this judgment.

Competition for basic materials, intermediate goods and skilled labor, however, might cause the pace of production of some of these new systems to be somewhat slower and the date of introduction to be somewhat later than the Soviet military would prefer. But even allowing for such delays, the U.S.S.R. can proceed with its strategic and general purpose programs for the next several years, whether the annual rate of procurement spending grows little or even declines. For example, the fourth graph in your package compares production from 1981 through 1985 of major weapons systems with representative levels of production of these systems that are feasible over the next 5 years, if procurement rose at an annual rate of only about 1 percent.¹

These are exemplar buys and the specific mix of weapons may be somewhat different than shown here—some higher, some lower—but we believe these figures represent the general level of procurement that will occur during the 1986 to 1990 period.

DEFENSE SLOWDOWN

Senator PROXMIRE. Could you give us a quick summary. You kind of slipped over the defense slowdown and the rate of spending on procurement since 1975.

Mr. MACEACHIN. Yes, sir.

The last year of the spurt in defense spending was 1974, when the Soviets brought in a new generation of strategic weapons, for example. Following that, it leveled off. Both agencies agree it leveled off. We believe that since then it has been sustained at the high level with a steady rate of growth of about 1 percent.

¹ See fig. 4, p. 15.

Senator PROXMIRE. Unlike American spending on procurement, which rose very sharply at the beginning of 1979.

Mr. MACEachin. Yes, sir.

Senator PROXMIRE. You agree, both the DIA and CIA agree that their procurement stayed steady at a high rate. It was higher than our procurement, but it stayed that way. It didn't increase, as ours increased.

Mr. MACEachin. Yes, sir. I think the peak difference was probably about 1976. At that point, ours turned up; theirs generally leveled off, but it has been sustained, and as I say, has been higher in the absolute amount than ours in that time frame.

POLITICS OF MODERNIZATION

I would like to turn now to what we will call the politics of modernization.

Senator PROXMIRE. Go ahead.

Mr. MACEachin. In the immediate future, we think that whatever controversy exists within the civilian and military leadership [security deletion].

Representative SCHEUER. Excuse me. When you drop your voice, I can't hear you. Could you repeat that last sentence?

Mr. MACEachin. Yes, sir.

I said, in the immediate future, whatever controversy exists between or within the civilian and military leadership over his modernization program does not appear sufficient to challenge him politically or derail his modernization program. He commands a dominant position in the Politburo, and his remaining critics, there is some evidence of these, but they appear to be on the defensive.

The political risks for him are likely to mount however, when the Soviets have to begin tooling up for the next generation of weapons. At that point, the demand for new investment for defense plant and production equipment will go up.

Unless his efforts to modernize industry pay off between now and then in greater numbers of more advanced, high quality equipment and substantially increased productivity, the conflict between civilian and defense interests will become more severe, in our view.

The military may be prepared to cope with the effects of more intense competition for basic materials and skilled labor as long as the defense industrial base exists to support ongoing programs, and modernization enhances the technological capabilities of the defense industry.

But major new weapons systems in the 1990's will require that new production capacity be built sometime in the late 1980's. At that juncture, the objectives of industrial modernization could increase pressures to postpone certain major defense initiatives. And this is an option which is certain to be unpalatable to most of the military leaders and also at least some on the Politburo.

REENGAGEMENT WITH THE UNITED STATES

In the meantime, Gorbachev's foreign policy strategy of reengagement with the United States appears designed to create an environment which is favorable to his domestic economic strategy and may even be aimed at blunting his potential political opposi-

tion by promoting a more relaxed atmosphere and a perception of arms control opportunities, Gorbachev almost certainly hopes to encourage downward pressure on U.S. defense spending.

United States-Soviet talks also advertise to the Europeans that the new Soviet leadership generally wants to reduce East-West tensions and that growth and modernization of the Soviet economy takes precedent over military might.

ECONOMIC BENEFITS FROM ARMS CONTROL

We think that the U.S.S.R. recognizes that the near-term economic benefits to Gorbachev's industrial modernization plan from an arms control agreement would not be great. Strategic weapons absorb fewer raw materials and are less labor intensive than ground force weapons, for example, while the high priority production resources devoted to strategic nuclear systems could be transferred only gradually to civilian purposes. In any case, the arms control proposals that are emanating from Moscow appear to have been designed to permit the Soviets to proceed with the strategic modernization they have already programmed between now and 1990.

Over the longer term, however, comprehensive arms control agreement, especially in a form that included sizable reductions in strategic forces and prevented or delayed deployment of U.S. SDI programs, would provide substantial economic benefits to the U.S.S.R. For example, reductions in deployed forces would enable the Soviets to save material and labor. Even greater savings could accrue if the Soviets are able to forego or postpone the investment in plant and equipment for production of the weapons systems. Whether and how the Soviets will react to these opportunities is, of course, far more problematic. In the meantime, Gorbachev is likely to continue to play to heightened Western expectations regarding arms control and the general political and economic conditions in the Soviet Union.

If this policy is successful, he will be in a stronger position to maintain the momentum of his industrial modernization program, when the pressure for investment in plant and equipment for defense programs becomes more intense later in the 1980's.

PROSPECTS FOR SUCCESS

Finally, I would like to look at the prospects for success that we see for Gorbachev. Down the line he faces considerable risk in implementing his modernization program. If he tries to carry out the program without raising overall investment growth in 1987 through 1990—in other words, if he does not, as he has in the 1986 program, maintain it well above the rate given for the 5-year plan, the impetus to growth contained in the 1986 plan is likely to trail off after a few years, leaving the shortages and disproportions characteristic of an unbalanced plan. To forestall such a situation, Gorbachev could decide to reverse direction and raise investment toward the end of the twelfth 5-year plan, by trying to curb the military's demand for machine building output and resources for research and development.

Under such a scenario, the military might become restless, while waiting for the deferred improvements in the technology base of defense industry. Alternatively, Gorbachev could free machinery for the modernization program by reducing resources that go into the consumer durables or the food program or by demanding more imports from Eastern Europe. Scaling down the resources for the consumer might be especially attractive if better than average weather over the next few years resulted in unexpected gains in the agricultural output.

In the absence of such an upturn, however, the hopes for eliciting a great work effort will probably plummet as general disillusion sets in, with the population seeing Gorbachev as no more effective than Brezhnev or Chernenko.

Another alternative would be that rather than increase investment resources, Gorbachev might seek to boost productivity through other policy initiatives. He could, for example, permit selective utilization of private sector activity, particularly consumer services. This would require a greater willingness to depart from economic orthodoxy than he has indicated so far he is willing to do.

He might be willing to introduce bolder measures, once his political support has been solidified, but to date, Gorbachev's approach has reflected adherence to the Soviet model. He doesn't seem to want to change the model. He seems to think he can make it work better.

In sum, we continue to believe that major adjustments probably will have to be made in Soviet economic policies, if Gorbachev hopes to come close to his economic objectives. At this stage, it is too early to say just what moves, if any, he would make.

The one thing that appears certain is that the new General Secretary remains committed to his industrial modernization program. Indeed, at the 27th Party Congress, Chairman of the Council of Ministers Ryzhkov in his keynote speech on the economy reiterated the ambitious targets for national income growth laid out in the draft guidelines of the twelfth 5-year plan.

He repeated the importance of investing more in machine building, while maintaining the large share, about one-third, taken by the Agro-industrial complex. He also announced, however, that investment in the energy sector would rise by 47 percent during the twelfth 5-year plan.

How the leadership intends to shape these rates of growth without squeezing other sectors of industry, while staying within the overall investment goal of 3.5 to 4 percent per year was not addressed, suggesting that the leadership is still developing the details of this resource allocation strategy. Thus, adjustments in the 5-year plan are a distinct possibility.

PERSONNEL CHANGES

Gorbachev is in a strong political position, as a result of the personnel changes conducted at the Congress. With the election of Lev Zaykov to the Politburo, he gained one additional ally with a voting membership. Major changes also were made in the Party Secretariat, strengthening Gorbachev's hand there.

Five new secretaries were added. Two, Boris Ponomarev, head of the International Department for the last quarter of a century, and Ivan Kapitonov, the Brezhnevite with the light industry profile, were dropped.

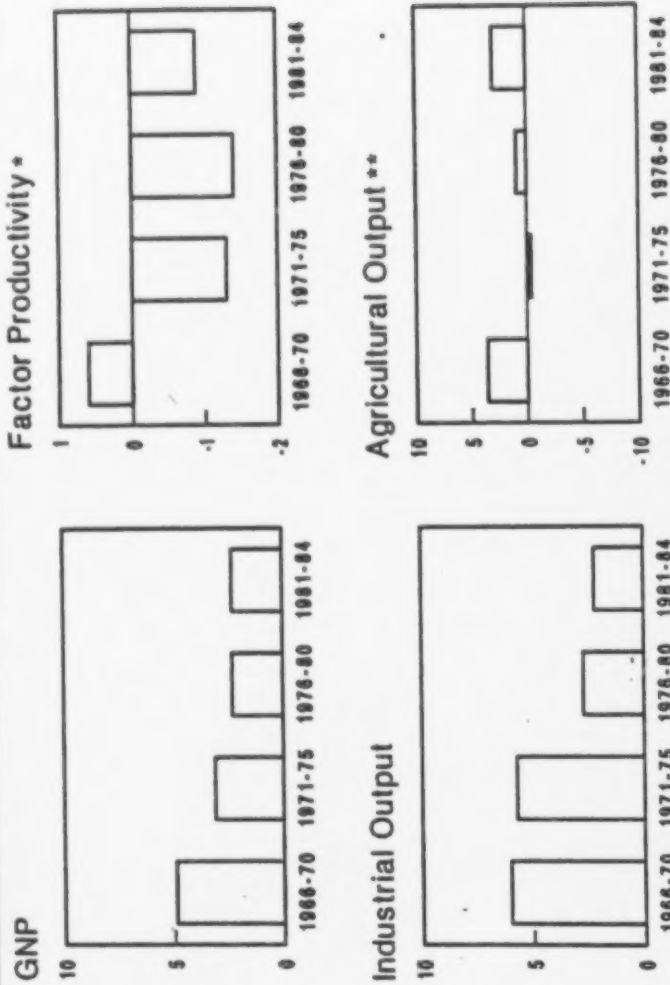
There are now only 2 Brezhnev-era officials remaining on the 11-member Secretariat.

Nevertheless, although these changes made a large contribution to Gorbachev's effort to reshape the leadership, there is an incompleteness about them that suggests more personnel moves can be expected as the new general secretary tries to promote people who will push his programs more vigorously.

[The following information was subsequently supplied for the record:]

FIGURE 1

USSR: Key Economic Indicators When Gorbachev Took Over (Average Annual Percentage Growth)



* Factor productivity measures the difference between the growth of gross national product and the growth of a weighted sum of inputs of land, labor, and capital.

** Growth was calculated using net agricultural output, which excludes intra-agricultural use of farm products but does not make an adjustment for purchases by agriculture from other sectors.

FIGURE 2

US and USSR: Procurement of Selected Weapons Systems, 1974-85^a

	US	USSR
ICBMs and SLBMs	1,050	3,500
Surface-to-air missiles ^b	11,700	105,000
Long and intermediate range bombers	8	400
Fighters	4,050	7,800
Helicopters	2,050	6,500
Submarines	44	110
Major surface combatants	98	90
Tanks	8,400	27,000
Artillery	2,200	22,000

^a These numbers represent gross additions to weapons inventories and do not reflect retirements because of obsolescence or SALT restraints.

^b Does not include naval or portable SAMs.

FIGURE 3

USSR: Shares of GNP by Sector of Origin at Factor Cost, 1982
(percent)

	<u>Value Added in 1970 Prices</u>	<u>Value Added in 1982 Prices</u>
Industry	36.8	33.7
Construction	7.6	7.9
Agriculture	14.3	20.0
Transportation	10.4	10.3
Communications	1.2	1.1
Trade	7.7	6.3
Services	20.2	18.2
Military personnel	1.6	1.8
Other branches	0.3	0.7
GNP	100.0	100.0

FIGURE 4

USSR: Procurement of Selected Weapon Classes

<u>Weapon Class</u>	<u>Estimated 1981-85</u>	<u>Possible 1986-90^a</u>
ICBMs/SLBMs	800	700 ^b
Submarines	40	50
Tanks	12,500	18,000
Fighter Aircraft	2,400	2,000 ^b
Helicopters	2,500	2,100 ^b
Strategic Bombers	200	210

^a See text for explanation of the 1986-90 projections.

^b Although our projections suggest lower overall numbers in these categories, the missiles, fighters, and helicopters the Soviets will procure during 1986-90 are more complex, capable, and costly than those purchased during 1981-85.

Mr. MACEACHIN. Before I turn to China, Admiral Schmitt would like to address in further detail, Soviet defense spending.

Representative SCHEUER. I am having great difficulty hearing. I'm sorry.

Admiral SCHMITT. In the next few minutes, I want to focus on the kinds of actions the Soviets have been taking that impact on the level of military spending, most specifically, on their procurement of major weapons systems.

DEFENSE TRENDS

Over the last two decades, the Soviets have expanded their military forces, which are in quantities far outstripping any defensive requirements, and which are in line with their strategic objective of military superiority.

Internationally, the Soviet leadership continues to rely upon military strength to extend its global presence and influence at the expense of the West.

The Soviets continue to supply arms and equipment to Third World countries to project power, obtain influence and foster dependence, as well as to generate hard currency income.

In 1984, arms sales generated as much as \$7 billion, or one-fifth of the total Soviet hard currency receipts. I have some tables for you, sir, that have, in more detail, the types of equipment in dollar amounts by country. We, at DIA, do not see any change in the basic Soviet political and military policies, objectives, or commitments occurring during the period of the twelfth 5-year plan. We believe that since at least 1970, the pace of Soviet military spending has grown faster than the economy as a whole, reflecting the military's priority claim on resources. As a result, we estimate the share of GNP devoted to military needs to have grown from 12 to 14 percent in 1970 to 15 to 17 percent now.

PROCUREMENT

DIA focuses primarily on the procurement of major weapons systems, those items which from the Defense Department's perspective represent the most tangible and direct military threat to the United States and its allies.

Now as to past trends on procurement, the Soviet commitment to military production is shown on tables 3 through 8. These tables reflect the levels of production for selected weapons systems for the military forces for the 1974-85 period.

I should note that these data are the result of recent DIA/CIA efforts to reconcile out or explain our differences in weapons production estimates. The data are agreed upon by both agencies, except where separate estimates for each agency are shown. These differences reflect the analytical uncertainties arising inevitably from the estimative process, and a paper detailing the joint effort will be published shortly.

Concerning the cost of resources, we agree with CIA that procurement growth slowed in the mid-1970's, but since 1982, faster growth has been observed in the dollar cost of major Soviet procurement than in the preceding 5-year period. The rate of growth since 1982 is estimated by DIA at 3 to 4 percent per year. These

dollar costs represent what it would cost in the United States to produce these weapons, using U.S. wages and prices. Therefore, the estimated dollar costs do not represent Actual Soviet outlays. The CIA estimates only a 1-percent cost growth per year over the same 5-year period.

NEW GENERATION WEAPONS

The major impetus to growth over the last few years is shown by the weapons systems contained on figure 1. These are some high cost, new generation weapons that are increasingly being produced. As the newer systems have become more sophisticated and capable due to improved technologies and materials, procurement costs for these systems have increased.

DIA assesses that despite all the past growth, the Soviet leadership still sees the requirement for more and better weapons systems. Soviet strategic offensive forces will require a number of follow-on systems over the next 10 years, in order to achieve improved accuracy and enhanced survivability.

Silo-based intercontinental ballistic missiles will increasingly be more accurate and thus more effective. Large numbers of land-based mobile intercontinental ballistic missiles will be deployed, which will provide a more survivable reserve force with reliable command and control connectivity.

Future submarine-launched ballistic missiles will also have improved accuracy possibly even a hard-target kill capability. They will have more MIRV's per missile and they will have a greater throw weight.

The new submarines will be significantly quieter than the older ones. Furthermore, many of the older liquid propellant missile systems will be replaced with solid propellant missiles.

In the area of Soviet strategic defense, this will be highlighted by the replacement of the Moscow Antiballistic Missile System. When complete, the new antiballistic missile system will employ two types of interceptors—an exoatmospheric [security deletion] system and an endoatmospheric [security deletion] system, which will provide a more robust two-layered defense for them.

Soviet air defense will be enhanced by the introduction of laser weapons around the end of the twelfth 5-year plan, to complement missile, gun, and aircraft systems.

Although no totally new strategic surface-to-air missile systems are expected to begin series production, numerous modifications are expected for the systems that have recently begun deployment.

We project the bulk of general purpose forces will be influenced by the requirements for a conventional option in Soviet war-winning strategy, while at the same time Soviet Forces will remain prepared to fight and win on a nuclear battlefield. Projected improvements in ground weapon systems, in command control and communication will increase Moscow's war-fighting options.

Apprehension over programmed NATO force changes has already inspired major improvements in conventional fire-power, concepts and overall troop control of large joint service forces. They will spur further changes throughout the next decade.

The substantial investment already made in the military industry will permit the Soviets to procure the current generation of weapons without large new additional investment. From their history and because of perceived requirements, we anticipate currently observed trends over the next two to three years to continue.

Supporting this view is continued plant expansion and evidence of new systems in development.

PLANT EXPANSION

Figure 2 is an example of plant expansion. In this case, the [security deletion] plant, enlarged for production of [security deletion].

Figure 3 shows a plant built at [security deletion] for production of the [security deletion].

Both of these are representative of the areas of growth we see in most areas of weapons production. New major weapons system in development are contained in table 9.

The probability of production is assessed as either high or a 90-percent confidence level, moderately high or a 70-percent confidence level or moderate at a 50-percent confidence level.

Production of reasonable quantities of these systems by Soviet standards would keep Soviet procurement dollar costs at their current high level.

INDUSTRIAL MODERNIZATION

The areas targeted for priority development in the twelfth 5-year plan—that is, computers, electronics, instrument-making and robots, are key to industrial modernization, as well as the future military production capabilities. The leadership can clearly see the military benefits of an improved high-technology industrial economy.

Therefore, they support industrial modernization. Its accomplishment is critical to providing the base for the next generation of weaponry in the 1990's.

The military industrial sector has been called on to assist the civilian sector, and it has provided some of its experienced managers to civilian industry over the past few years.

Civil managers have also been told to emulate the military, but it may be difficult to do so, because not all sectors can receive resource priorities. There has been no evidence of actual reallocation of military assets to the civil sector. Most assets now devoted to the military are not easily transferable to other uses. If there are any shifts in the allocation of resources, it would take place at the margin, that is, in the resources currently being added to the existing stock, rather than shifts in the stock itself.

We expect the Soviet economy to have difficulty meeting all of the new 5-year plan's goals simultaneously.

The productivity increases sought by the leadership would double the present growth level, and it would be difficult to obtain it due to both a slowly growing labor force that lacks effective work incentives and a resource base that is more difficult and costly to develop.

In summary, in the course of the twelfth 5-year plan, Soviet industrial modernization is unlikely to impact significantly on Soviet

military production, either positively or negatively. Massive quantities of investment into the weapons producing industries have already been made. Plant expansion and new construction are providing the base for the anticipated growth in weapons procurement. The infrastructure for planned production throughout the 1980's is in place and the new 5-year plan clearly indicates that the military sector will have the required allocation of resources.

MILITARY SPENDING

We expect Soviet military spending to continue to grow, more likely faster than the economy itself. In the longer term, in the 1990's and beyond, the impact on Soviet military expenditure of industrial modernization could be profound. If the Soviets succeed with the industrial modernization plans and bring about the higher levels of economic growth, the economic base for Soviet military growth and modernization including increasingly sophisticated high technology systems will have been substantially strengthened. This, we believe, is a major objective of the 5-year plan.

If economic progress does not proceed as planned, Soviet leaders are likely to return to larger investments in the military sector rather than in the economic infrastructure. We do not see Soviet leaders, regardless of the faction of the Soviet elite that's in power, retreating from their longstanding commitment to military superiority over potential adversaries.

Even with increasing economic pressures and problems, the military sector can be expected to receive priority in Soviet allocation of resources, regardless of the marginal rates of change in military expenditures over the next few years. The central point remains that the magnitude of these expenditures gives the Soviets a formidable base for continuing modernization of their military forces.

Doug, do you want to continue?

[The tables and figures referred to by Admiral Schmitt, together with the joint prepared statement of Mr. MacEachin and Admiral Schmitt, follow:]

TABLE 1.—Major Soviet military equipment exports, 1974-85

Equipment type:	Number exported
Tanks	14,775
Armored vehicles.....	18,760
Fighters	5,600
Artillery	17,020
Helicopters.....	1,805
Submarines.....	18
Selected surface ships.....	66
Missile attack boats	93

TABLE 2.—ESTIMATED VALUE OF SOVIET MILITARY DELIVERIES

[In billions of dollars]

Recipient	1974-79	1980-85
Total	41.5	68.0
6 WP countries.....	8.7	9.8
Syria	4.5	10.3
Iraq	6.0	8.2
Libya	5.4	5.8

TABLE 2.—ESTIMATED VALUE OF SOVIET MILITARY DELIVERIES—Continued

[In billions of dollars]

Recipient	1974-79	1980-85
Vietnam.....	2.1	4.9
India.....	2.0	4.8
Algeria.....	1.6	3.6
Cuba.....	1.3	3.9
Ethiopia.....	1.5	2.6
Angola.....	0.7	2.8
60 other countries.....	7.7	11.3

TABLE 3.—MISSILE PRODUCTION FOR THE SOVIET MILITARY, 1974-85¹

General type	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative, 1974-85
ICBM's.....													
SLBM's.....													
Short range ballistic missiles.....													
Air-to-surface cruise missiles.....													
Naval cruise missiles.....													
SAM's.....													

¹ Figures deleted for security reasons.TABLE 4.—AIRCRAFT PRODUCTION FOR THE SOVIET MILITARY, 1974-85¹

General type	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative, 1974-85
Bombers.....													
Fighter-bombers.....													
ASM reconnaissance.....													
Fighters.....													
Transports, others.....													
Helicopters*.....													

¹ Figures deleted for security reasons.TABLE 5.—NAVAL SHIP PRODUCTION FOR THE SOVIET MILITARY, 1974-85¹

General type	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative, 1974-85
SSBN's.....													
SSGN's.....													
SSN's/SS's.....													
Major surface combatants.....													
Minor surface combatants.....													
Key auxiliaries.....													
Amphibious ships.....													

¹ Figures deleted for security reasons.

TABLE 6.—LAND ARMS PRODUCTION FOR THE SOVIET MILITARY, 1974-85¹

General type	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative, 1974-85
Tanks													
Other armored vehicles* ..													
Field artillery													

¹ Figures deleted for security reasons.TABLE 7.—SPACE LAUNCH VEHICLE AND SPACECRAFT PRODUCTION FOR THE SOVIET MILITARY, 1974-85¹

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative, 1974-85
Space launch vehicles													
Spacecraft													

¹ Figures deleted for security reasons.TABLE 8.—STAND-ALONE RADAR PRODUCTION FOR THE SOVIET MILITARY, 1974-85¹

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative, 1974-85
Early warning/GCI/ target acquisition													
Height finding													
IFF													
Missile related													
AAA fire control													
ABM related													

¹ Figures deleted for security reasons.TABLE 9.—*New Soviet weapon systems projected to enter series production, 1986-94¹*

Weapon system	<i>Probability of production</i>
---------------------	--------------------------------------

¹ Figures deleted for security reasons.

Figure 1

NEW GENERATION WEAPONS

BEAR H BOMBER FULCRUM FIGHTER

MIKE SSN

(SECURITY DELETION)

DELTA IV SSBN SIERRA SSN

FLANKER FIGHTER SS-25 ICBM

FOXHOUND FIGHTER UDALOY DDG

Figure 2

, (SECURITY DELETION)

Figure 3

(SECURITY DELETION)

JOINT PREPARED STATEMENT OF DOUGLAS MACEachIN AND
ADM. ROBERT SCHMITT

The Soviet Economy Under a New Leader

19 March 1986

A paper prepared jointly by the Central Intelligence Agency and the Defense Intelligence Agency for submission to the Subcommittee on Economic Resources, Competitiveness, and Security Economics of the Joint Economic Committee, Congress of the United States

The Soviet Economy Under a New LeaderTable of Contents

	<u>Page</u>
Summary.....	i
Introduction.....	1
Gorbachev's Inheritance.....	1
Gorbachev's Strategy.....	9
Addressing the Human Factor.....	10
Industrial Modernization.....	11
1985: A Year of Transition.....	11
The 1986-90 Plan.....	15
Ambitious Targets.....	15
Dependence on Unrealistic Conservation and Productivity Goals.....	16
The 1986 Plan: Emphasis on Modernization.....	18
Implications for Defense.....	20
Factory Capacity Available.....	21
Materials, Intermediate Goods, and Labor.....	22
Capitalizing On Sunk Costs.....	23
The Politics of Modernization.....	24
Future Decision Points.....	26
Short-Term Economic Prospects.....	26
Long-Term Uncertainty.....	27
Appendix A: Revised Estimate of Soviet GNP.....	31
Appendix B: 1985 Economic Performance: Mixed Results.....	38

The Soviet Economy Under a New LeaderSummary

During the year he has been General Secretary, Mikhail Gorbachev has shown himself to be the most assertive leader since Khrushchev. He has accumulated power by virtue of his strong personality and by inserting his own cadre into key positions. Moving forcefully to place his personal stamp on economic policy, he has announced an ambitious strategy for modernizing the economy.

Gorbachev's plans call for boosting economic growth through massive replacement of outdated plant and equipment and an emphasis on high-technology industries. Both the general program goals he has laid out in public speeches and the investment targets set forth in the 1986 Economic Plan would require record growth in the machinery allocated for modernizing Soviet plant and equipment. The machinery needed for industrial modernization is produced in the USSR in the machinery and metalworking sector--which is also the primary source of production of military hardware and consumer durables.

In the near term, the Soviet defense establishment is well positioned to accommodate the possible shifts in machinery demand implied by the industrial modernization program. Since the mid-1970s, major investments in defense industrial facilities have resulted in a substantial expansion and upgrading of defense industry. As a consequence, most Soviet weapons expected to be delivered to the Soviet forces through 1990 will be manufactured in plants already built and operating.

Competition for resources could be intense, however, for some basic materials and some intermediate goods, such as high-quality steel and microprocessors, and for skilled labor--resources traditionally supplied on a

priority basis to military production. This competition could result in some trade-offs at the margin between military and civilian production.

Nevertheless, in view of the immense sunk costs for plant and installed equipment in the defense production facilities, and the fact that these cannot be readily converted to civilian use, the industrial modernization goals are unlikely to significantly impede the completion of the major deployments of strategic weapons that the Soviets have programed through the 1980s.

At this stage, Gorbachev's economic policies appear to command widespread political support--both because of the consensus for the need to revitalize the industrial base and because defense procurement programs are largely unaffected in the near term. A number of senior military officers, moreover, have declared that industrial modernization is necessary if the USSR is to meet the technical challenge of the 1990s. The real test of Gorbachev's support will come in two or three years when renewed demands for expanding and renovating defense industries begin, as defense industries have to start preparing to produce new generations of weapons. How the Soviets are able to deal with their resource allocation problems then will depend on their success during the next few years in raising productivity, increasing the supply of advanced machinery, and building more modern industrial facilities.

Introduction

This joint CIA-DIA report reviews the current state of the Soviet economy and its probable direction after the first year of Gorbachev's stewardship. It begins by briefly discussing the economic situation when he took over with special reference to the defense sector. It then describes what Gorbachev appears to want to achieve with respect to the economy and the military, and how he plans to go about achieving his goals. Finally, the report analyzes the implications of the new General Secretary's gameplan for resource allocation and evaluates its prospects for success.

Before turning to these issues, a methodological note is in order. Past assessments of the Soviet economy and defense expenditures submitted to the Joint Economic Committee by CIA were conducted using a 1970 ruble price base. The analysis in this report was carried out in 1982 prices. The move to a more recent price base culminates a three-year research effort and allows us, we believe, to give a more accurate assessment of the resources associated with Soviet production. Although the basic trends have not changed, the use of 1982 prices has resulted in somewhat different estimates of historical growth rates for the Soviet economy, as well as the share of GNP devoted to consumption, investment, and defense. These findings are discussed in more detail in Appendix A.

Gorbachev's Inheritance

When Gorbachev came to power in March 1985, he inherited the world's second largest economy. It possessed a number of major strengths, including a highly skilled workforce and an enormous resource base. Nonetheless, over the past decade, despite continued growth, the gap between economic performance and plans and expectations had been widening, forcing Soviet leaders to turn

more and more of their attention to the country's economic problems. For example, despite generally increased use of fertilizers and other key resources in recent years, growth in agricultural output had failed to keep pace with the increase in population for a decade. Industry had also failed to live up to expectations. Problems in the energy, steel, and construction materials sectors, coupled with occasional transportation bottlenecks, had restricted industrial growth during 1981-84 to only about half the planned rate. The net result was that Soviet GNP growth during the 11th Five Year Plan (1981-85) appeared headed for its worst showing in any FYP since World War II (see Figure 1).

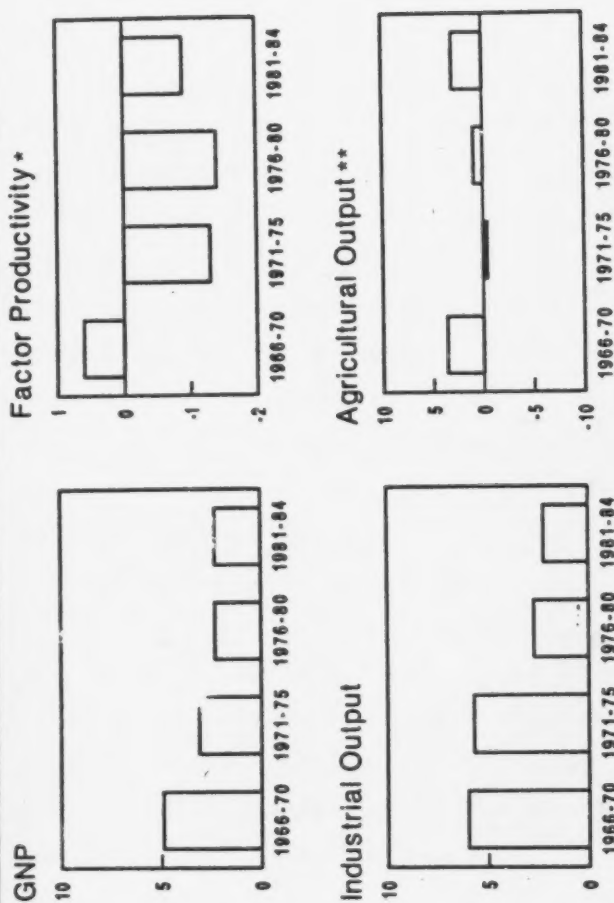
Moscow's basic problem was that by the mid-1970s the simple growth formula that produced major economic gains in the post-war period--ever increasing inputs of labor and capital resources--was no longer feasible. Over the past decade, the USSR had experienced:

- Near stagnation in steel output.
- A precipitous rise in energy and other raw material costs.
- A sharp fall in investment and labor force growth.
- A decline in productivity.

Gorbachev's predecessors recognized these problems and indicated, at least rhetorically, that in the future the economic system would have to operate differently if it were to meet the USSR's needs. Efforts to increase the quality and quantity of output and make better use of available resources in the economy--i.e., a switch to a pattern of "intensive growth" based on productivity gains--were frustrated, however, by a relatively backward technological base, inflexible production processes, and, perhaps most important, a cumbersome and inefficient system of planning and management and a distorted structure of incentives.

Figure 1

USSR: Key Economic Indicators When Gorbachev Took Over (Average Annual Percentage Growth)



* Factor productivity measures the difference between the growth of gross national product and the growth of a weighted sum of inputs of land, labor, and capital.

** Growth was calculated using net agricultural output, which excludes intra-agricultural use of farm products but does not make an adjustment for purchases by agriculture from other sectors.

Moreover, the leadership's inability to stimulate higher economic growth had contributed to a growing malaise among a substantial and growing share of the population by the end of the Brezhnev era, not only because gains in living standards had slowed but also because of an apparent belief that the system was incapable of bringing about any meaningful improvement. This attitude--reflected in the rise in alcoholism and health-related problems--exacerbated the corruption and inefficiency that had permeated the Soviet economic structure--from farmhand to factory worker to the ministerial bureaucracy. Workers and managers alike spent increasing amounts of time and effort trying to insulate themselves--often through illegal means--from the effects of shortages in both the home and factory. This reduced productivity on the job and aggravated shortages of goods and services throughout the economy, especially for individuals and enterprises with little or no "special access."

Meanwhile, Gorbachev took charge of a powerful military--one that had been built up through a massive commitment of the nation's best resources over the past two decades and one that had been used increasingly to achieve political goals. During 1965-75, for example, Soviet military expenditures grew in constant rubles by nearly 50 percent (see Box Inset). Growth slowed in the mid-1970s, but the Soviets sustained spending at very high levels, enabling them to procure massive quantities of military hardware. As a result, the share of GNP devoted to the military increased in current ruble prices from about 12 to 14 percent in the early 1970s to around 15 to 17 percent in the early 1980s as the growth of military spending during this period continued to exceed that of the overall economy.

Box Inset

Dollars and Rubles

The CIA estimates the annual value of Soviet defense activities in both constant ruble prices and constant dollar prices:

- The dollar valuation is used to measure how annual Soviet defense activities compare in size with similar US activities.
- The ruble valuation is used to measure the impact of Soviet defense spending on the country's economy.

In comparing the Soviet defense effort with that of the United States, a common set of prices is needed. Military goods and services procured by the USSR are valued in dollar prices. Either dollars or rubles could be used, but dollar prices are used because they are most familiar to US defense planners and policymakers and because of the difficulty of estimating ruble prices for US defense activities--especially the cost of producing US weapons in Soviet manufacturing plants. These estimates can then be compared with US defense budget outlays for a comparable set of activities over the same period of time.

The impact of Soviet defense spending on the economy must be measured in rubles. Our ruble calculation provides an estimate of the level of, and the trend in, the annual Soviet resource commitment to military forces. This estimate is used to assess the impact of defense programs on the Soviet economy and, conversely, the impact of economic factors on Soviet defense activities. The estimate permits insights into the resource constraints confronting Soviet planners and the priorities they assign to the elements of their defense effort.

End of Box Inset

Soviet gains in the strategic area were especially large. Over the last decade, Soviet strategic forces received roughly 3,500 ICBMs and SLBMs, three times as much as the United States procured. Similar sweeping improvements occurred in Soviet conventional forces where the USSR added large numbers of more sophisticated fighters, bombers, and tanks. In addition, throughout this period, Soviet defense industries, whose capacity expanded rapidly, produced an increasing amount of military hardware for delivery to other countries, particularly in the Third World, in an effort to both gain political influence and also to increase hard currency earnings. (Table 1 compares procurement of selected military hardware by US and Soviet military forces, and Table 2 presents estimates of the value of Soviet military exports during 1974-85.)

Despite the priority given to the military in resource allocation, the defense sector was not totally immune to the effects of economic problems. Resources devoted to military-related research and development continued to grow at a healthy 4 to 5 percent per year, but growth of military procurement dropped markedly and held overall defense growth (measured in dollars) to about 2 percent per year during the 1974-85 period--about half the rate of the previous decade. Both CIA and DIA agree that a slowdown in defense procurement occurred during this period, although the Agencies differ somewhat on procurement trends in recent years (see Box Inset).

In short, Gorbachev's predecessors left him with powerful military forces and a large but troubled economy. One of his primary challenges as General Secretary was, therefore, to find the resources to accelerate economic growth while sustaining the military gains of the past 20 years. Indeed, Gorbachev probably was selected as General Secretary in part because of the belief among certain of the elite that he was the best man to bring about a resurgence of

Table 1

US and USSR: Procurement of Selected Weapons Systems, 1974-85^a

	US	USSR
ICBMs and SLBMs	1,050	3,500
Surface-to-air missiles ^b	11,700	105,000
Long and intermediate range bombers	8	400
Fighters	4,050	7,800
Helicopters	2,050	6,500
Submarines	44	110
Major surface combatants	98	90
Tanks	8,400	27,000
Artillery	2,200	22,000

^a These numbers represent gross additions to weapons inventories and do not reflect retirements because of obsolescence or SALT restraints.

^b Does not include naval or portable SAMs.

Table 2

USSR: Estimated Value of Military Deliveries, 1974-85
(billion US dollars)

<u>Recipient</u>	<u>1974-79</u>	<u>1980-85</u>	<u>1974-85</u>
Six Warsaw Pact countries	8.7	9.8	18.5
Syria	4.5	10.3	14.8
Iraq	6.0	8.2	14.2
Libya	5.4	5.8	11.2
Vietnam	2.1	4.9	7.0
India	2.0	4.8	6.8
Algeria	1.6	3.6	5.2
Cuba	1.3	3.9	5.2
Ethiopia	1.5	2.6	4.1
Angola	0.7	2.8	3.5
60 other countries	7.7	11.3	19.0
Total	<u>41.5</u>	<u>68.0</u>	<u>109.5</u>

Box Inset

CIA-DIA Dollar Cost Estimates of Soviet Defense Procurement

CIA and DIA dollar cost estimates of Soviet defense procurement are derived from estimates of weapon systems production. As a result of an extensive 1985 review of such estimates, past differences between CIA and DIA have been narrowed greatly. Both Agencies agree on estimates for more than 200 of the 250 weapons systems examined. Both Agencies also agree that between 1975 and 1981 the dollar cost of weapons procurement increased at a rate of roughly 1 percent per year.

Some differences still exist, however, on the growth of procurement in recent years. After several years of stability, DIA estimates that, in the 1982-84 period, major weapons procurement increased at about 3 to 4 percent per year. In contrast, CIA believes that defense procurement was essentially flat during this period.

It should be pointed out that the DIA's methodology differs somewhat from CIA's, and therefore the results are not directly comparable. DIA concentrates on estimating the year-to-year changes in the costs of major weapons procurement, which includes approximately 350 weapon systems. CIA estimates total procurement, which encompasses such additional categories and components as organizational equipment and some weapons systems not costed by DIA (e.g., missile launchers and air-to-air missiles). As a result, the DIA estimate--in value terms--is about 70 percent of CIA's total procurement.

In addition to this difference in coverage, DIA and CIA do have different estimates for the production of some weapons systems, and some methodological differences in arriving at unit costs still remain.

End of Box Inset

broad-based economic growth and to push through an effective program of industrial modernization.

Gorbachev's Strategy

Gorbachev has, in fact, made it clear almost since the day he became General Secretary that revitalization of the economy is a top priority. Gorbachev has acknowledged that without improved economic performance the USSR would have trouble simultaneously meeting requirements for defense, boosting consumer welfare sufficiently to improve labor productivity, and modernizing the economy. In particular, without a major renovation of the country's industrial base, the new General Secretary probably realized that the USSR would continue to trail technologically in some areas vital to the military. In recent years, Soviet military authorities (including Marshal Ogarkov) have gone on record saying that, without major improvements throughout the economy, the USSR's military capabilities would continue to lag the West's technically in many areas, and Soviet forces would face increased difficulties in meeting the military requirements of the 1990s.

In laying out his economic program, Gorbachev has focused his efforts squarely on increasing efficiency. To this end, he has essentially adopted a two-step approach. Initially, Gorbachev is relying on a combination of measures to strengthen party discipline, improve worker attitudes, and weed out incompetents--what he refers to as the "human factor." Over the longer term, Gorbachev is counting on achieving major productivity gains as a result of a series of organizational changes, reform initiatives, and, most importantly, an extremely ambitious campaign to modernize the country's stock of plant and equipment.

Addressing the Human Factor

Gorbachev's first and most accessible target in his campaign to boost productivity has been his campaigns for discipline and against corruption and alcoholism. These efforts--like those pushed less vigorously by Andropov--have received widespread public support and yielded positive results. According to Soviet figures, purchases of alcohol at state stores declined 25 percent during the second half of 1985 compared with those of the last six months of 1984. Soviet press statements indicate that, as a result, there has been a marked decrease in absenteeism, fewer industrial accidents, and increased productivity overall.

At the same time, Gorbachev has removed an unprecedented number of senior economic managers (see Figure 2). Since taking over, he has replaced the Chairman of the Council of Ministers and five deputy premiers with officials more beholden to him. He has also removed the Central Committee department chiefs who oversee the machine-building, construction, and trade and service sectors, while replacing 25 of the country's economic ministers and state committee chairmen. Some of the replacements have backgrounds in defense industries, reflecting Gorbachev's willingness to draw upon talented officials in that sector to improve management of the civilian economy.

In contrast to his personnel moves, Gorbachev has moved much more cautiously on the organizational front, eschewing a sudden sweeping overhaul in favor of a more selective approach in an apparent effort to reduce economic dislocation and political infighting. Since mid-October, he has established new bureaus to oversee the machine building and energy industries and has embarked upon a major reorganization of the agro-industrial bureaucracy. Similarly, while avoiding any major reform initiatives and expressing a preference for working within the system, Gorbachev has voiced support for

Figure 2

MAJOR PERSONNEL CHANGES UNDER GORBACHEV

- Three Politburo opponents removed; five allies appointed.
- Chairman of the Council of Ministers retired; some 25 economic ministers and state committee chairman replaced.
- Eight Central Committee Department Chiefs removed --- including five responsible for economic affairs.

giving greater operational independence to enterprise managers and workers through expansion of such programs as the "Five-Ministry Experiment." Begun in January 1984, this experiment is supposed to give enterprises greater control over investment and wage funds and to make fulfillment of contractual sales obligations the prime indicator for evaluating enterprise performance.

Industrial Modernization

Without downplaying the importance of his personnel and organizational changes, Gorbachev has made it clear, however, that his call for accelerated productivity growth depends ultimately on fundamental improvements in the country's production base, or, in his words, on nothing less than "the structural transformation of the economy." According to one unofficial Soviet estimate, the stock of machinery and equipment is 20 years old on average. In laying out his program last summer and fall, Gorbachev proposed:

- Doubling retirement rates of capital stock to accelerate the replacement of obsolete capital by more efficient, largely state-of-the-art machinery.
- Modernizing the nation's capital stock so that by 1990 a third of it, including up to half the machinery portion, is new.
- Increasing capital investment in civilian machine building in 1986-90 by 80 percent over that of 1981-85.

The qualitative side of Gorbachev's modernization strategy has emphasized the development of those industries that provide the advanced equipment for industrial modernization.

1985: A Year of Transition

As Gorbachev was putting forward his blueprint for reviving the economy during the latter part of the 1980s, the Soviet economy was turning in another lackluster performance. Shrinking farm output held GNP growth in 1985 to

about 1½ percent for the second straight year. Meanwhile, non-farm output rose by about 2½ percent last year. Industrial output increased by nearly 3 percent, a figure about equal to the 1983-84 pace as the tabulation below shows. (See Appendix B for a description of Soviet performance by sector.)

USSR: Growth in GNP by Sector of Origin^a

	Percent					
	Average Annual 1981-85	1981	1982	1983	1984	1985 ^b
GNP	2.2	1.7	2.7	3.5	1.5	1.6
Agriculture ^c	2.2	-0.5	6.2	6.8	-0.5	-0.6
Other Sectors (including industry)	2.3	2.4	1.6	2.5	2.4	2.6
Industry	2.3	1.6	1.4	2.9	2.9	2.8

^a Calculated in 1982 rubles at factor cost.

^b Preliminary.

^c This measure for agricultural output excludes intra-agricultural use of farm products but does not make an adjustment for purchases by agriculture from other sectors. Value added in agriculture grew by an average of -1.5 percent in 1981, 7.4 percent in 1982, 7.4 percent in 1983, -1.7 percent in 1984, -2.1 percent in 1985, and at an annual average rate of 1.8 percent for the period 1981-85 as a whole.

Despite the relatively slow growth in the economy overall, Gorbachev could take some satisfaction from the 1985 results. Through a combination of factors, a year that started out very badly turned into one that was at least respectable. Certainly, improved weather after the first quarter eased pressures throughout the economy. But a similar situation during 1981--when harsh weather also disrupted production--did not result in nearly the same turnaround. (See Box Inset on Gorbachev's impact on the economy's performance in 1985.)

Although Gorbachev probably deserves some credit for the economy's showing in the last half of 1985, the programs and decisions involving

Box Inset

Did Gorbachev Make a Difference in 1985?

At the recently concluded 27th Party Congress, party leaders hailed Gorbachev for the economy's improved performance since he took over last March. On the surface, their praise seems justified. After a miserable first quarter last year, non-farm output rebounded strongly. Industry, in particular, has done well and by the last quarter of 1985 was growing at close to 3.5 percent per year.

Much of the rebound is attributable to improved weather during the last three quarters of the year. Last year's winter was the coldest in 20 years. Rail freight traffic fell sharply, apparently causing shortages of raw materials throughout industry. As the weather improved, these problems disappeared. Another factor in the rebound was the "postponement" of two holidays during the second half of 1985. As a result, there were two more work days during the last six months of 1985 than in the same period in 1984.

Nevertheless, Gorbachev's vigorous campaigns to increase worker discipline and cut alcohol abuse probably paid some dividends. At an April plenum just after taking office, Gorbachev issued an urgent call for better economic performance. While acknowledging the severe winter weather, he blamed the lack of discipline and passive management for the poor first quarter results and told workers and managers, in effect, to shape up or "move aside." His firing of one-third of the industrial ministers during the year--mostly in sectors that had been doing poorly showed that he--unlike Brezhnev--was willing to follow through on his criticisms of industrial leaders.

End of Box Inset

resource allocation resulted from policies that predate his selection as General Secretary. During 1985, for example, growth in investment was 2.7 percent, up from the 1.9 percent rate in 1984, but far below the rate necessary to carry out Gorbachev's modernization program. Probably because of harsh winter weather that delayed many construction projects, investment grew faster in the second half of the year. Even when the weather improved, however, problems in bringing new production facilities on line continued. New capacity commissioned in 1985 was valued at only 0.7 percent more than the capacity brought on stream in 1984, despite repeated calls by Gorbachev and other top officials to cut back on unfinished construction during the year.

Similarly, whatever Gorbachev's intentions regarding increasing the availability of consumer goods as a spur to labor productivity, such a policy was not evident during 1985. In particular, shortages of sought-after goods and services continued, limiting growth of per capita consumption to less than 1 percent, half the rate achieved in 1984. Supplies of some quality food--e.g., meat--showed little increase over 1984 levels. As a result, queues continued to be widespread, and rationing continued in some areas in 1985.

While we have a fairly good sense of consumption and investment trends in 1985, our information on Soviet defense spending is much less solid and we have not settled on an estimate for last year. What is certain is that the Soviets continued the broad based modernization of their military forces during 1985. They augmented their strategic nuclear strike capability by beginning to deploy new bases for the new mobile SS-25 ICBM. At the same time, they added new units of both the Typhoon and Delta IV Classes of ballistic missile submarines.

Soviet general purpose forces modernization also continued apace, with many of the programs--especially those in the ground forces--apparently intended to make Soviet forces more capable of extended operations. As part

of this effort, for example, Moscow continued to field new tanks, an improved tracked infantry vehicle, and a new wheeled armored personnel carrier. Meanwhile, Soviet air force units received their initial complement of SU-27 Flanker fighters, as well as other aircraft already in serial production. Finally, the Soviets continued their commitment to a blue water navy with the addition of a new Oscar Class cruise missile submarine and the fitting out of both the fourth Kiev Class aircraft carrier and a new large aircraft carrier.

The 1986-90 Plan:

Ambitious Targets

Whatever the economy's shortcomings in 1985, Gorbachev has made it clear that he expects much better results during the next FYP. The draft economic guidelines for 1986-90 that were issued in early November set ambitious targets. GNP is slated to grow at roughly 3 1/2 percent per year in 1986-90 and by about 5 percent per year in 1991-2000, rates not achieved in more than a decade.* Among the major sectors, agricultural output is planned to increase by about 3 percent per year, a substantial improvement over the 1981-85 results. Meanwhile, in line with Gorbachev's strategy, industrial output is scheduled to grow by a respectable 4 1/2 percent per year, led by a 7-to-8 percent annual increase in production of the machine-building sector. Within machine building, special emphasis is to be given to the machine tool, computer, instrument making, electrical equipment, and electronics industries--the same sectors that have paced modernization efforts in the West. Production in these industries, identified by military leaders as being

* The Soviets do not set a target for GNP, which is a Western concept. They use a Marxist concept of national income which excludes services as well as most wages in services. To convert their national income target to a GNP goal, we add an estimate for growth of most service sectors.

the key to modernization of the defense industrial sector, is to grow about 1 1/2 times as fast as machine building output as a whole.

Despite these impressive goals, the guidelines allow for only moderate increases in factor inputs. In line with demographic trends, little growth is anticipated in the labor force. What appears incongruous, however, is that total investment is slated to rise by only about 3 1/2 to 4 percent per year. Although somewhat above the rate of recent years, the investment target is insufficient to meet Gorbachev's stated goals for increasing investment in the machinery sector, while satisfying the needs of other critical sectors such as energy, transportation, and ferrous metallurgy.

The reason for the low investment target is unclear. The fact that Gorbachev remanded the draft guidelines repeatedly before they were issued and that no investment data other than an overall growth target appeared suggests that the issue of resource allocation was a difficult one. Moderate investment growth appears inconsistent with a radical modernization of the economy.

Dependence on Unrealistic Conservation and Productivity Goals

To make the plan balance--given the low investment figure--the guidelines for 1986-90 call for sharp increases in productivity and substantial energy and raw material savings. The guidelines exhort managers and workers to save industrial materials and fuels--an old theme. The leadership's problem is that in the short term there are few opportunities for quick savings that have not already been exhausted. While substantial savings could be realized by the use of more efficient equipment, its development--a high priority of the Gorbachev regime--is difficult and time consuming.

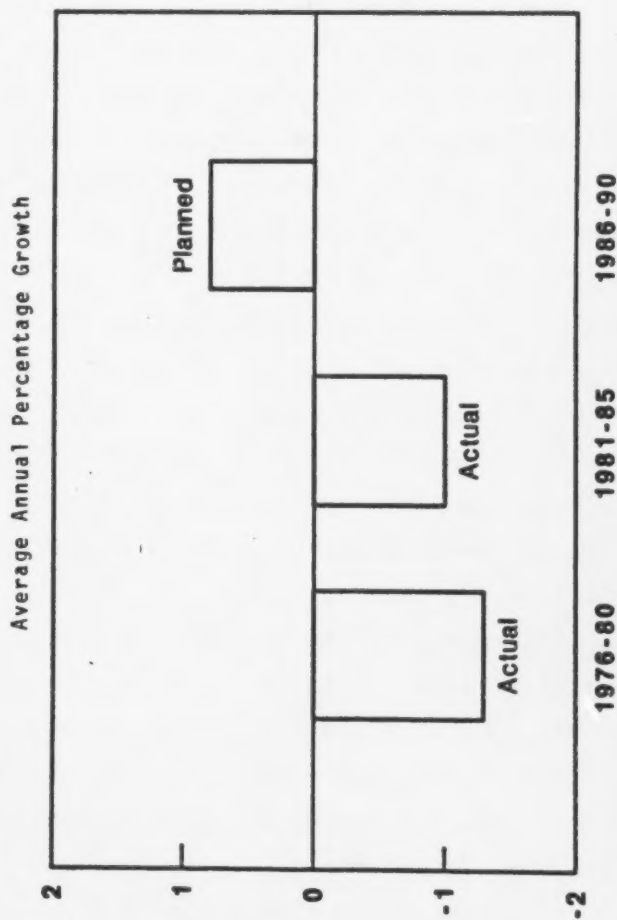
At the same time, to help bridge the gap between planned output and factor inputs, substantial real growth in productivity is planned. Success in meeting this goal would stand in sharp contrast with the past two FYPs, when productivity actually declined (see Figure 3). To this end, the leadership is apparently banking on greater worker effort prompted by increased availability of consumer goods and services. For example, the 12th FYP largely repeats the targets of the Food Program--first advanced by Brezhnev in 1982--including a goal for boosting per capita meat production by 17 percent over the next five years.

As a further incentive to the workers, the Politburo also approved a Consumer Goods and Services Program last fall that lays down impressive goals for improving the quality and quantity of nonfood consumer goods and services. Both are to grow at annual rates roughly double the average annual rates achieved during the 1981-85 period. While less ambitious than those proposed by Khrushchev in the 1961 Party Program, they seem unrealistic in light of recent trends and the apparent lack of any substantial increase in planned investment growth in these areas during 1986-90. No investment figures for these areas were given in the guidelines, but Gorbachev's emphasis on focusing investment resources on sectors related to industrial modernization would seem to preclude a large shift of resources in favor of the consumer.

Even if the Soviets were to achieve all the targets set forth in the Food and Consumer Goods and Services Programs, it is still unlikely that they would be translated into sizable productivity increases--no matter how much greater effort the workforce put forth--unless they were also able to meet their plans for producing new machinery and equipment. Indeed, this point was made by

Figure 3

USSR: Growth in Factor Productivity, 1976-90^a



a. Factor productivity measures the difference between the growth of Gross National Product and the growth of a weighted sum of inputs of land, labor, and capital.

Nikolay Ryzhkov, the new Chairman of the Council of Ministers, in his speech to the 27th Party Congress. He said that assimilation of new machinery would account for more than two-thirds of the planned increase in labor productivity in the country.

The 1986 Plan: Emphasis on Modernization

Whatever the reason for the low investment target in the 1986-90 guidelines, and the need to set unrealistic conservation and productivity goals as a result, support for the investment program was back on center stage by the time the 1986 annual plan was issued. The 1986 growth target for new fixed investment is 7 1/2 percent--at least twice the average annual growth target for the 1986-90 period as a whole. Within the total, investment in civilian machinery is slated to grow a whopping 30 percent. Moreover, in apparent contrast with Gorbachev's previous statements that the share of investment in energy would be held constant during the FYP, investment in oil extraction is slated to rise by 31 percent, in the coal sector by 27 percent, and in the electric power sector by 24 percent. Similarly, agriculture's investment share apparently will be held nearly constant in 1986, rather than decreasing as had been suggested earlier.

Although the 1986 plan calls for rapid growth in investment, the machinery sector will be hard put to meet the demands placed on it for investment goods, while at the same time meeting the requirements for consumer durables output and military procurement--the other two major claimants on the sector's output. The Soviets probably could increase the supply of new capital somewhat without increasing domestic production of investment resources by reducing the stock of uninstalled equipment and the backlog of unfinished construction. Success in accelerating capital assimilation would give a one-shot boost toward meeting equipment modernization goals. For

example, pronounced success in reducing the stock of uninstalled equipment might free 2-3 billion rubles of new machinery. Once the additional stocks have been mobilized, however, inventory drawdowns are no longer a source of additional machinery.

Some increase in machinery imports is also certain in 1986. The plan guidelines for 1986-90 make it clear that the leadership expects substantial help from Eastern Europe. They emphasize increasing economic integration within CEMA, and Gorbachev's appointments of Boris Aristov and Nikolay Talyzin--both with extensive experience in East European affairs--as Foreign Trade Minister and Chairman of the State Planning Committee, respectively, could help in this regard. Moreover, the USSR may also be looking to the West for increased machinery imports, especially in key areas such as energy, advanced machine tools, and ferrous metallurgy. But while potentially helpful in 1986, the absolute gains over the longer term probably will not be large because of (a) the lead times involved in contract negotiations with Western suppliers, (b) the deterioration in the USSR's hard currency position, and (c) the reluctance of Eastern Europe to provide more and better machinery.

In sum, the 1986 annual plan appears designed to give a powerful boost to modernization. The question still open is whether this commitment will be sustained throughout the five-year period or whether the Soviets will stick to the investment target in the draft guidelines. Indeed, if investment grows at 7 1/2 percent in 1986 as planned, investment would have to grow at only 2 1/2 to 3 percent per annum during 1987-90 to meet the FYP target. A cutback to these levels in the late 1980s is unlikely, however. Investment rising at this rate would not support industrial modernization on the scale Gorbachev has been talking about. Moreover, Gorbachev probably would not slow the investment momentum in 1987-90 if he comes close to meeting his 1986 target.

Implications for Defense

Gorbachev's plan for refurbishing the country's industrial base through the massive replacement of machinery and equipment will certainly involve increased demands for many of the resources used in the production of weapons. We do not know how far Gorbachev will go in emphasizing modernization of civil industry as opposed to defense industry. We do have evidence, however, that the Soviets are aware of the heavy resource constraints the military burden places on the modernization program.

Many Soviet military leaders appear to realize, however, that the military will be the ultimate beneficiary of successful industrial modernization and have voiced their support for it. Soviet military authors are aware that economic improvements will ease resource constraints and accelerate the introduction of new technology, thus setting the stage for more rapid military modernization in the 1990s. In particular, weapons to be introduced in the mid-1990s will use more sophisticated guidance, sensor, computer, and communication subsystems, which in turn will require advanced microelectronics, design, fabrication, and testing capabilities. An example of the military perspective was contained in an article in the October 1985 issue of Kommunist vooruzhenykh sil by Major General Vasykov who identified "fundamentally new instruments, computer-controlled machine-tools, robot equipment, and the latest generation computers," as "the leading directions of scientific-technical progress and simultaneously the basic catalysts of military-technical progress."

To the extent the Soviets have difficulty finding the resources to meet Gorbachev's industrial modernization goals and satisfy military requirements in the near term, the problem will be centered in the machinery sector--which traditionally has allocated a large portion of its output to the military.

The increased demands for resources needed for these programs will be centered around several areas:

- Factory Capacity. Implicit in Gorbachev's call for increased output of advanced machinery is the competition--in the absence of rapid plant expansion--for modern workspace at production facilities. In this connection, robots, computer-numerically-controlled machine tools, computer-aided design systems, flexible manufacturing systems, and other highly automated manufacturing systems are important for the production of both advanced manufacturing equipment needed for boosting industrial productivity and for producing sophisticated weapon systems.
- Basic Materials. Chemicals and metals are used in producing both weapons and advanced machinery. The ferrous metals ministry, for example, has failed to meet its targets for many types of steel in recent years.
- Intermediate Products. Engineering plastics, advanced composite materials, electronic components, and microprocessors are currently in high demand in the defense industry and, as modernization proceeds, will be needed increasingly by civil industry as well. These products, however, are in short supply.
- Labor. Both the defense industry and modern civil industry require highly skilled workers, particularly computer technicians and software engineers.

Factory Capacity Available

The near-term competition for factory floorspace and investment goods has been mitigated by the substantial expansion and upgrading of defense-industrial plants over the past decade. Comprehensive programs to modernize many weapons production facilities began in the early 1970s. Efforts to modernize defense industry accelerated in the late 1970s, and we believe a large portion of the best domestically produced machinery was delivered to defense industry during this period. In addition, the defense sector was helped by a surge in clandestine and open acquisition of Western manufacturing equipment.

As a result of this investment in defense industry, almost all of the production capacity required to support Soviet force modernization over the next six years or so is already in place. Our calculations suggest that

virtually no additional investment in the plant and equipment is needed to manufacture the military hardware that we believe will be in production in 1986-88 and that most of the capacity required to turn out the military equipment projected to be in production in the early 1990s is already available. Moreover, weapons development and industrial construction indicate that investment in defense industries will continue at a high level, adding new capacity with greater capabilities. Thus, military production would not be constrained in the near term by a reallocation of new fixed investment in favor of civilian machinery and other priority sectors.

Materials, Intermediate Goods, and Labor

Although the Soviets have the production capacity to maintain or even increase the current level of weapons production, competition for labor and material inputs used in the production process could force some trade-offs at the margin between military and civilian production. The nature of this competition is shown in Figure 4, which summarizes our judgments on (a) the degree of need for the particular resource in civilian machinery, (b) its availability in non-machinery sectors of the economy, and (c) how easy it would be to shift the resource from military defense industry to civilian machinery.

High-quality steel and energy, for example, will be in great demand to manufacture machines needed for both industrial modernization and weapons production. The high targets the Soviets have set for machinery production will place tremendous demands on the ferrous metals branch. This industry, however, has been doing poorly in recent years and apparently will receive little, if any, increase in investment during the 1986-90 FYP. Although there is likely to be some growth in the energy sector, the energy situation may be tight.

Figure 4
USSR: Military-Civil Competition for Resources

Resource	Need in Civilian MBMW Sector for Modernization	Availability of Outside of MBMW Sector	Transferability from Military to Civilian MBMW	Comment
Materials				
Basic/Raw:				
Energy	Medium	High	High	
Intermediate:				
Chemical feed stock	High	Medium	Med-High	
Engineering fibers	High	Low-Med	High	
Micro-electronics	High	Low	High	In very short supply in both sectors.
Specialty steel	Med-High	High	Med-High	
Aluminum	Med-High	High	High	
Titanium	Medium	Medium	Medium	
Construction materials	Medium	High	High	
Intermediate Products				
Conventional:				
Electric motors	Med-High	Low	Med-High	
Diesel engines	Med-High	Low	Med-High	
Advanced:				
Engineering plastics	High	Low-Med	High	
Micro-processors	High	Low-Med	High	
Composites	High	Low-Med	High	
Micro-electronic components	High	Low-Med	Medium	
Manpower				
Skilled:				
Computer programmers	High	Low-Med	High	Shortage exists throughout economy.
Electronics technicians	High	Low-Med	High	
Software engineers	High	Low-Med	High	
Researchers	Med-High	Med-High	Medium	
Machinists	Medium	Low-Med	High	
Industrial engineers	Medium	Low-Med	High	
Unskilled:				
Laborers	Low-Med	High	High	

The competition for human resources could be even more intense. Extensive underemployment exists in the Soviet economy, and Gorbachev may hope that he can support his modernization program by mobilizing currently underemployed engineers and labor. But shortages persist in the USSR in several skill areas critical to both defense and modernization--for example, systems analysts and, to a lesser degree, computer programmers and selected types of engineers and skilled machinists. The most likely immediate source of additional specialists for civil machine building is a reallocation of the employees already working in the machinery sector.

Capitalizing on Sunk Costs

In view of the massive investment already made in defense plant capacity and the powerful precedents of military priority, we believe that the Soviets will move ahead with most of the military modernization that the Intelligence Community has projected through the end of the decade. As noted, nearly all of the major systems expected to be delivered to the forces in the next several years already are being built on fully equipped final assembly lines. The Blackjack bomber, the SU-27 fighter, the SS-25 ICBM, and the T-80 tank, for example, have all entered production, and although the SS-X-24 is not yet in production, the necessary capacity is ready and the production machinery is probably installed.

The demands for basic materials, intermediate goods, and skilled labor to meet Gorbachev's industrial modernization goals, however, might cause the pace of production of some of these new systems to be somewhat slower and the date of introduction somewhat later than would otherwise be the case. Even allowing for such delays, however, the USSR can proceed with its strategic and general purpose programs over the next several years--whether the annual rate

of procurement spending grows a little or even declines. For example, Table 3 compares 1981-85 production of major weapon systems with representative levels of production of the same systems that are feasible over the next five years if procurement spending grows at an average annual rate of less than one percent. The specific mix of weapons may be somewhat different--some higher, some lower. Nonetheless, taking into account the sunk costs and the momentum of ongoing programs, we believe these figures reflect the general level of procurement that will occur during the 1986-90 period.

At these general levels of production, improvements to Soviet strategic forces will be substantial. New generations of land and sea-based ballistic and cruise missiles recently have entered or will soon enter production. As a result, a comprehensive modernization of the USSR's strategic offensive forces should be completed by the early 1990s. Strategic defense force improvements, although less substantial, also will permit sustained improvements in capabilities.

Conventional forces will undergo a similar upgrade. Two late generation fighters, the MIG-29 and SU-27, are entering the inventory, while new submarines and warships--including the USSR's first full-sized aircraft carrier--are improving naval capabilities. Meanwhile, a variety of improved land arms (most notably new artillery weapons and the T-80 tank) are being deployed to the ground forces.

The Politics of Modernization

Thus, Gorbachev can "coast" for a few years on the strength of the USSR's past investment in its military industrial complex, which will permit the continued modernization of the USSR's strategic and conventional forces. As already noted, the military appears to support Gorbachev's basic program--both

Table 3

USSR: Procurement of Selected Weapon Classes

<u>Weapon Class</u>	<u>Estimated 1981-85</u>	<u>Possible 1986-90^a</u>
ICBMs/SLBMs	800	700 ^b
Submarines	40	50
Tanks	12,500	18,000
Fighter Aircraft	2,400	2,000 ^b
Helicopters	2,500	2,100 ^b
Strategic Bombers	200	210

^a See text for explanation of the 1986-90 projections.

^b Although our projections suggest lower overall numbers in these categories, the missiles, fighters, and helicopters the Soviets will procure during 1986-90 are more complex, capable, and costly than those purchased during 1981-85.

because it will allow for the modernization of strategic forces and because of its long-term promise of more advanced weapons. The extensive top level leadership changes and the formal endorsement of the Party Congress put Gorbachev in a good position to move ahead with implementation of his programs for change. His preoccupation now will be with lower level elements of the entrenched bureaucracy--that is, how to get them to implement his policies.

Nevertheless, over the longer term, the political risks for Gorbachev are likely to mount as the demand for new investment for defense plant and production equipment rises in the late 1980s and early 1990s, when the Soviets will have to begin tooling up for the next generation of weapons. Unless Gorbachev's efforts to modernize industry pay off in greater numbers of more advanced, high quality equipment and in substantially increased productivity, Gorbachev will need to reconsider his overall economic strategy. Over the next few years, the defense industries will be expected to do more with the resources they have as they satisfy continuing defense requirements. In the late 1980s, however, decisions will have to be made regarding the building of new capacity to produce the major new weapons of the 1990s. At that juncture, shortfalls in industrial modernization and technological advance could increase pressures to postpone certain major defense initiatives--a development that would be unpalatable to the military and some political leaders.

Future Decision Points

Short-Term Economic Prospects

Gorbachev's political fortunes ultimately will depend on maintaining his political support within the Party. If Gorbachev is not able to reverse the downward trend in economic growth, his support will be greatly weakened. In the short run, at least, prospects for at least some success in reviving the

economy are promising. In 1985, industry rebounded from a very poor start to register respectable growth. As noted earlier, much credit is due to better weather, but Gorbachev's initiatives may also have had a positive impact which should carry forward in 1986 and beyond.

Some modest improvements in economic performance also could show up when the "Five-Ministry Experiment"--the limited expansion of the operational decisionmaking authority of plant directors under way since 1984--is extended industrywide next year. Positive results depend, however, on preventing the economic ministries from encroaching on the authority of industrial firms and--at the same time--assuring that enterprise managers do not use their increased powers in ways that are inconsistent with national economic goals. Historically, these have been elusive objectives, and, even as emended by Gorbachev, the Five-Ministry Experiment has not introduced changes in economic incentives that are likely to result in significant progress toward them.

Gorbachev's program should also benefit somewhat from the upturn in machinery production that began in 1983. After averaging annual gains of about $1\frac{1}{2}$ percent during 1981-82, machinery output has picked up to an annual rate of more than $3\frac{1}{2}$ percent. The 30-percent rise in investment in the machinery sector planned for this year will help future growth.

Long-Term Uncertainty

How much economic improvement can be expected, and how long it can be sustained, however, is very much an open question. Although personnel changes, reorganization of the planning and management apparatus, and increased discipline may boost labor productivity for a few years, we believe they cannot by themselves sustain growth indefinitely. The key to success will be Gorbachev's ability to cope with some fundamental problems:

- Improving management efficiency and worker morale will require an effective incentive system and a better supply of consumer goods at a time when the investment sector will be oriented toward producer goods. Investment in some consumer sectors has apparently received short shrift, risking consumer discontent that will counter efforts to raise productivity.
- The greater managerial independence necessary for effective technological development and resource use is inconsistent with a centrally planned pricing and allocation system.
- Industrial modernization is a process best served by slack in the economy that give plants the time to retool and learn how to use new equipment. Gorbachev's emphasis on immediate acceleration of GNP growth means a continued priority on current output--the major source of the traditional reluctance of enterprise managers to introduce new technology.

Thus, Gorbachev could be taking a considerable risk in implementing his modernization program. If he tries to carry it out without raising the overall investment rate for 1986-90, the impetus to growth based on the 1986 plan is likely to trail off after a few years, leaving the shortages and disproportions characteristic of an unbalanced plan. Shortchanging the energy sector after this year, particularly oil, could result in a further sharp decline in oil production. Already last year, falling oil prices and a decline in sales to the West led to a \$3.5-billion drop in hard currency earnings. An erosion of the same magnitude is possible this year. To offset some of this loss, Moscow will probably try to push arms sales, but lower oil prices have resulted in a weak demand from major Middle Eastern customers.

Hard currency arms exports fell about 30 percent in 1985 and could fall again this year. Moreover, unless the USSR is willing to underwrite Western imports through massive borrowing--which seems unlikely--Moscow may be forced to reduce imports of state-of-the-art technology.

To maintain or restore the momentum to his modernization program, Gorbachev could decide to step up investment toward the end of the 12th FYP by trying to curb the military's demand for machine-building output and R&D resources. The military obviously might become restless under such a scenario while waiting for the deferred improvements in the technological base of military industry. Alternatively, Gorbachev could find machinery for the modernization program by curtailing the resources committed to consumer durables production or the Food Program or by leaning more heavily on Eastern Europe. Scaling down resources for the consumer might be especially attractive if better than average weather over the next few years resulted in unexpected gains in agricultural output. In the absence of such an upturn, however, Gorbachev's plans to increase work effort would probably founder as general disillusion set in, with the population seeing Gorbachev as no more effective than Brezhnev or Chernenko.

Rather than direct more resources to investment, Gorbachev might seek to promote productivity through organizational reforms. He could, for example, permit some legalization of private-sector activity, particularly in consumer services. This would indicate willingness to overturn past economic orthodoxy in order to improve consumer welfare and, thereby, economic performance. Although Gorbachev has taken a conservative approach to reform measures so far--preferring to work within the system--he may be willing to introduce bolder measures once his political support has solidified.

In sum, major adjustments probably will have to be made in Soviet economic policies if Gorbachev hopes to achieve his economic objectives, although at this stage it is too early to tell just what he will do. The one thing that appears certain is that the new General Secretary remains committed to his industrial modernization program. Indeed, at the recently concluded 27th Party Congress, Council of Ministers Chairman Ryzhkov, in his keynote speech on the economy, reiterated the ambitious targets laid out in the draft guidelines of the 12th FYP. He repeated the importance of investing more in machine-building, while maintaining the large share, about one-third, taken by the agro-industrial complex. He also announced, however, that investment in the energy sector would rise by 47 percent during the 12th FYP. How the leadership intends to achieve these rates of growth without squeezing other sectors of industry--while staying within the overall investment goal of 3 1/2 to 4 percent per year--was not addressed, which suggests that the leadership is still developing its resource allocation strategy.

Whatever adjustments have to be made, Gorbachev is in a stronger political position as a result of the personnel changes conducted at the Congress. With the election of Lev Zaykov to the Politburo, Gorbachev gained an additional ally with voting membership. In addition, major changes were made in the Party Secretariat, strengthening Gorbachev's hand there. Five new Secretaries were added and two--Boris Ponomarev, head of the International Department for a quarter of a century and Ivan Kapitonov, a Brezhnevite with the light industry portfolio--were dropped. With these changes, only two Brezhnev era officials remain on the 11-member Secretariat.

Appendix A

Revised CIA Estimates of Soviet GNPNature of the Revision

The economic growth rates presented in this paper are based on a major revision of the estimates that have been published annually in CIA's Handbook of Economic Statistics and described in detail in USSR: Measures of Economic Growth and Development, 1950-80 (issued in December 1982 under the aegis of the Joint Economic Committee). The purpose of the revision is to base the estimates on prices of a more recent year--1982 instead of 1970. The results should be regarded as preliminary and subject to further revision as more information becomes available.

The shift to a new price base affects estimates of GNP and its growth rates in three major ways when compared with previous estimates:

- Values of output are higher, because prices in general increased between 1970 and 1982.
- Rates of real growth--excluding price effects--are lower for GNP and most key components. This result is to be expected when prices of a more recent year are used to calculate growth rates (the "index number" effect--see Box Inset). In converting estimates of US GNP from 1972 prices to 1982 prices, the Department of Commerce obtained similar results.
- Shares of key components of GNP are different because the components experienced diverse rates of change in both real growth and prices.

The estimates of Soviet GNP are calculated first by using prevailing 1982 prices and then adjusted so as to measure better the actual allocation of

Box Inset

To see why measured economic growth is likely to be lower, the more recent the price base used in the calculation, consider an example. Suppose we want to estimate the real growth in output of precision instruments, a group of products ranging from clocks to automation equipment to computers. Depending on the base year chosen, the change in relative prices of individual products in this group will differ because of differences in technology, scale of production, and input costs. The prices of the new and fastest growing products--like computers--tend to fall relative to other prices because of more rapid gains from advances in technology and economies of scale. Therefore, the fastest growing products will have smaller weights--and less impact on average growth of the group--in a later base year than they would in an early base year.

End of Box Inset

resources in the economy and changes over time in its potential to produce goods and services. Official Soviet prices give quite a distorted picture of the true costs of economic resources, largely because the prices include huge sales taxes, levied mostly on consumer goods, and subsidies, which affect mainly food and services. Moreover, the profits included in the prices do not reflect accurately the differences in efficiency among producers. To correct for such distortions in official prices, a so-called "factor cost adjustment" is made in which profits and indirect taxes are subtracted and subsidies and charges on fixed and working capital are imputed. The resulting values give a much better picture of patterns of resource allocation by producing sector and by final end use than the distributions shown by official prices. Also, estimates of changes in GNP using factor cost valuations provide more accurate measures of growth in production potential over time.

Results of the Revision

With both prices and real output rising, Soviet GNP increased by nearly 90 percent between 1970 and 1982, to a level of 720 billion rubles. Prices accounted for over a third of this increase, implying a rate of inflation of a little more than 2 percent per year. In contrast, official Soviet statistics for measures similar to GNP imply an inflation rate of less than half a percent per year during that period. Most Western specialists believe that these official statistics seriously understate the extent of price increases and therefore overstate Soviet economic growth.

Annual growth rates of Soviet GNP in real terms as measured in 1982 prices are with few exceptions lower than previously estimated rates measured in 1970 prices (Table A-1). Shifting the price base reduced annual rates of increase by a few tenths of a percentage point in the 1980s. The differences

Table A-1

USSR: Comparison of GNP Growth at Factor Cost in 1970 and 1982 Prices
(percent per year)

	Price Base	
	1970	1982
1966-70	5.3	4.9
1971-75	3.8	3.1
1976-80	2.7	2.3
1981-85	2.4	2.2
1981	1.9	1.7
1982	2.4	2.7
1983	3.5	3.5
1984	2.0	1.5
1985 ^a	2.1	1.6

^a Preliminary.

between rates are a little larger in earlier years--half a percentage point or more in the 1970s.

The shift to a new price base had a significant effect on the relative shares in total output coming from the two largest producing sectors--industry and agriculture (Table A-2). The share of industry is smaller when measured in 1982 prices because average wages in industry increased much less during 1971-82 than average incomes in agriculture, and the capital-output ratio increased more rapidly in agriculture than in industry. The shares of the trade and services sectors dropped somewhat, while the shares of the remaining sectors are little affected by the change in the price base.

Impact on Estimates of Defense Spending

Moving Soviet defense spending estimates from a 1970 to a 1982 price base has affected assessments of defense spending and its components in four major ways:

- The overall level of spending rose.
- The share of GNP allocated to defense spending increased from 12 to 14 percent in the early 1970s to 15 to 17 percent in the early 1980s.
- Estimates of the rate of real growth decreased slightly.
- The shares of major resource categories in total defense spending changed.

The estimates of defense spending in 1982 prices show a higher overall level of spending than did the 1970 series. The new series averages almost 50 percent higher for the period since 1970 than the series in 1970 prices, indicating that military costs increased about three percent per year. When both price change and growth in real output are taken into account, the growth in defense spending averaged over 5 percent annually during 1971-84. Price changes accounted for more than half of this increase.

Table A-2

USSR: Shares of GNP by Sector of Origin at Factor Cost, 1982
(percent)

	Value Added in 1970 Prices	Value Added in 1982 Prices
Industry	36.8	33.7
Construction	7.6	7.9
Agriculture	14.3	20.0
Transportation	10.4	10.3
Communications	1.2	1.1
Trade	7.7	6.3
Services	20.2	18.2
Military personnel	1.6	1.8
Other branches	0.3	0.7
GNP	100.0	100.0

The change to a 1982 price base shows a somewhat higher share of GNP allocated to defense than did the earlier series. This result implies that prices for defense goods and services increased faster than for civilian goods and services. During 1966-84, total defense spending increased on average by almost three percent annually--somewhat less rapidly than the series in 1970 prices.

The direction of this change in relative growth rates is what index number theory predicts (see above), but it is not a large effect. One reason for this is that in the conversion to 1982 prices the share of defense spending devoted to procurement increased, while the share of the more slowly-growing personnel category fell.

Appendix B

1985 Economic Performance: Mixed Results

Soviet economic performance in 1985 continued the uneven record compiled by the economy during the just completed the 11th Five Year Plan. Disappointing farm output held GNP growth to about $1\frac{1}{2}$ percent, the same as in 1984. After a poor first quarter, however, the pace of Soviet non-farm growth--led by strong recovery in industry and transportation--had returned to its recent annual rate of nearly $2\frac{1}{2}$ percent. Industry grew by almost three percent in 1985, but by more than $3\frac{1}{2}$ percent in the last quarter. Agricultural output, in contrast, shrank for the second year in a row, although an improved grain harvest allowed Moscow to cut grain imports substantially. This reduction was helpful in dealing with a 20-percent drop in hard currency earnings, largely the result of reduced oil and arms exports, although increased borrowing and gold sales also were needed.

Industry

After showing a moderate improvement in 1983-84 from the depressed levels of the previous two years, Soviet industrial performance worsened abruptly during first quarter 1985. The USSR was hit by the coldest winter of the last 20 years. Industrial growth slumped. Output of several industrial products was so low, in fact, that the customary data on their production were omitted from official monthly plan fulfillment reports during the early months of the year. Nonetheless, for the year, industrial production rose by almost 3 percent, or roughly on par with the previous two years.

Machinery. Performance in all branches of industry improved during the course of the year. As usual, however, the increase in machinery production--the major source of consumer, investment, and defense durables--led most other

branches, although growth for the year was below the 4-percent increase in 1984 (see Table B-1). Production of computers, high-tech machine tools, and other types of automated equipment showed the best results. Growth in output of transport equipment, in contrast, was slight.

Industrial Materials. While machinery posted the best results overall, the most significant recovery was in the branches producing industrial materials--the raw materials and intermediate products used throughout Soviet industry. After registering a 2 1/2-percent decline during first quarter 1985 (compared with first quarter 1984), output of industrial materials rebounded to plus a 2 1/2-percent for the year. Growth in the production of ferrous and non-ferrous metals was on a par with 1984. The chemicals branch did somewhat better as the addition of four new ammonia plants helped boost fertilizer output by 8 percent. Only the construction-materials branch failed to rebound completely from the dismal first quarter in which output actually fell by 6 percent over that of a year earlier.

Energy. Energy production continued to rise in 1985 with strong performances in the coal, gas, and electric power sectors. Growth fell slightly, however, below that of 1984 due to a decline in oil production.

- Soviet oil production declined for the second straight year, to 11.9 million barrels per day, or about 300,000 b/d below the 12.2 million b/d posted in 1984.
- The Soviet gas industry finished with a record-breaking 55-billion-cubic-meter increase in 1985, a 9 1/2-percent jump over the previous year.
- Meanwhile, Soviet coal production increased by 13 million tons, the largest annual increment during 1981-85, while electricity production

Table B-1

USSR: Growth of Industrial Production by Branch^a

	Percent					
	Average Annual 1981-85	1981	1982	1983	1984	1985 ^b
Industry	2.3	1.6	1.4	2.9	2.9	2.8
Machinery	2.7	1.4	1.6	2.8	4.0	3.6
Industrial materials	2.2	1.6	0.7	3.7	2.3	2.5
Ferrous metals	0.8	-0.3	-0.0	2.6	0.9	0.9
Nonferrous metals	2.0	0.3	0.8	3.0	3.0	3.0
Chemicals	4.1	4.0	2.1	6.9	3.5	4.3
Wood products	2.1	1.9	0.5	2.9	2.7	2.2
Construction materials	1.3	1.3	0.1	2.0	1.3	1.6
Energy	2.2	1.9	2.2	2.3	2.8	1.8
Fuels	1.1	1.4	1.6	1.2	0.9	0.3
Electric power	3.6	2.5	3.1	3.7	5.2	3.5
Consumer nondurables	2.1	2.0	1.3	2.1	2.0	3.0
Soft goods	1.7	1.8	-0.5	1.2	2.8	3.0
Processed foods	2.4	2.2	2.8	2.9	1.3	3.0

^a Value added at 1982 factor cost. Based on CIA's index of Soviet industrial production.

^b Preliminary.

climbed by more than 3 1/2 percent over 1984, almost reaching the plan target.

The Soviets were able to cope with declining oil production and less than expected output of other fuels by cutting exports, by shifting some oil users to natural gas--a process expected to continue over the longer term--and possibly by drawing down oil stocks.

Other Branches. Other industrial branches did fairly well. Overall growth of consumer nondurables was about 3 percent in 1985, up from recent rates. Light industry was not unduly affected by the bad winter, as textile production increased moderately. At the same time, the food-processing industry showed a substantial improvement over 1984--meat and fish products did particularly well.

Agriculture

While industry posted a relatively good showing, Soviet farm output shrank slightly in 1985. A small increase in overall crop production was more than offset by lower production in the livestock sector.* The same snow storms that hurt industry and spring sowing protected fall-sown grain and helped replenish the soil moisture needed for a good crop. For the year, grain production totaled an estimated 190 million metric tons according to USDA (the USSR has not published a grain figure since 1980)--the best harvest since the record 237 million tons in 1978 and some 20 million tons above the 1984 estimated results. But this achievement, together with increased production of sunflower seed, fruits, and cotton, was largely offset by lower output of key crops such as potatoes, sugar beets, and vegetables.

* Value-added in agriculture (which excludes purchases from other sectors) declined by roughly 2 percent. (U)

The setback in the livestock sector resulted largely from declines in the number of cows--partly the result of culling of unproductive animals--and in the numbers of hogs, sheep, and goats. Meat production was up by less than 1 percent. This result was unexpected in view of the much more robust monthly growth reported for meat produced on state and collective farms that accounts for roughly two-thirds of the total. The implied reduction in the share of meat produced by the private sector may reflect an accounting shift from the private sector to production under contract with state or collective farms, a practice the leadership is encouraging. Officially, meat produced under such an arrangement is counted against state and collective farm targets.

Other Sectors

Performance in other major sectors of the economy was mixed. Transportation--a major problem in the early 1980s--proved to be another sector that rebounded from a negative first quarter and turned in a fairly strong showing. The recovery of the railroads was particularly impressive as rail freight traffic, which declined by 5.5 percent during the January-March period, posted a 2-percent gain for the year--a much better result than would have been expected in view of their poor performance after the weather-related strains of early 1982. Highway traffic was also able to overcome some of its recent problems and showed positive growth for the first time in three years. Only crude-oil pipeline shipments, which were affected by declining oil production, were lower than planned.

In contrast to the better news in transportation, probably the most disappointing showing from the Soviet perspective was in the foreign trade sector. Declining oil exports to the West precipitated an estimated 5-percent drop in overall trade--the first such reduction since the mid-1950s. Based on Soviet trade data for January-September 1985, we estimate that exports to the

West dropped by almost 20 percent from the previous year--largely the result of declines of 20 percent in oil earnings and 30 percent in Soviet arms exports. To offset the fall in earnings from lower oil sales, the Soviets stepped up borrowing, increased gold sales, and postponed some planned purchases. Imports from the West were down by as much as 8 percent. Overall, Moscow ended 1985 in a less comfortable financial position than it enjoyed at the beginning of the year, although it has still maintained its excellent credit rating.

Soviet trade with the Communist countries, in contrast, continued to increase in 1985. As in the recent past, Soviet imports from Communist countries have grown faster than Soviet exports, reducing Moscow's trade surplus with these countries, especially its East European partners. Overall, trade with the Communist countries grew by an estimated 7 percent (in ruble terms), and the share of this trade in total Soviet trade increased to 61 percent, the highest level since 1972.

[The following tables were subsequently supplied for the record by the CIA:]

TABLES

Table 1	USSR: GNP by Sector of Origin at Factor Cost (billion 1982 rubles)
Table 2	USSR: Value Added in Industry at Factor Cost (billion 1982 rubles)
Table 3	USSR: Average Annual Growth of Per-Capita Consumption (1982 established prices)
Table 4	USSR: Growth of GNP and Factor Productivity (average annual percentage change)
Table 5	USSR: Growth of Industrial Output and Factor Productivity (average annual percentage change)
Table 6	USSR: Gross Fixed Capital Investment (billion rubles, 1984 prices)
Table 7	USSR: Foreign Trade by Major Region
Table 8	USSR: Estimated Hard Currency Debt to the West
Table 9	USSR: Estimated Hard Currency Balance of Payments
Table 10	USSR: Selected Indicators of Agricultural Output
Table 11	USSR: Freight Turnover by Transport Mode

Table 1

USSR: GNP by Sector of Origin at Factor Cost
(billion 1982 rubles)

	1955	1960	1965	1970	1975	1980	1981	1982	1983	1984	Preliminary 1985
GNP*	250.0	329.5	416.1	529.1	615.5	689.6	701.0	719.7	745.0	756.5	768.3
Industry	57.7	85.4	116.9	156.6	206.2	235.3	239.2	242.5	249.6	256.8	264.1
Agriculture	89.4	109.5	126.6	149.2	133.4	136.2	134.1	144.1	154.7	152.1	148.9
Construction	14.6	23.5	29.3	37.7	46.7	52.9	55.2	56.9	58.3	59.4	60.7
Transportation	10.6	18.8	30.5	43.0	59.1	70.6	73.5	74.4	76.5	77.7	79.6
Communications	1.4	1.9	2.8	4.2	5.7	7.2	7.5	7.7	7.9	8.3	8.7
Trade	11.8	17.4	22.0	30.8	38.1	43.8	44.8	45.1	46.2	47.4	48.4
Services	54.2	64.0	76.4	93.3	110.2	126.1	129.1	131.0	133.6	136.5	139.6
Other (including military personnel)	10.3	9.0	11.8	14.3	16.0	17.4	17.6	17.9	18.1	18.2	18.3

* Components may not add exactly to total because of rounding.

Table 2

USSR: Value Added in Industry at Factor Cost
(billion 1982 rubles)

Industry*	1955	1960	1965	1970	1975	1980	1981	1982	1983	1984	Preliminary 1985
Ferrous metals	57.7	85.4	116.9	156.6	206.2	235.3	239.2	242.5	249.6	256.8	264.1
Nonferrous metals	5.0	7.2	10.2	13.1	15.9	16.5	16.4	16.4	16.8	17.0	17.1
Fuel	2.1	2.8	4.1	6.0	7.9	8.5	8.6	8.6	8.9	9.1	9.4
Electric power	5.4	8.6	12.1	15.9	20.6	24.3	24.7	25.0	25.4	25.6	25.6
Machine building & metal working	2.5	4.2	7.3	10.6	14.9	18.6	19.1	19.7	20.4	21.5	22.2
Chemicals	15.6	22.4	31.3	42.6	61.8	75.1	76.1	77.3	79.5	82.7	85.6
Wood, pulp, and paper	2.2	3.7	6.6	10.1	15.1	18.0	18.7	19.1	20.4	21.1	22.2
Construction materials	7.7	10.1	11.5	13.1	14.7	14.2	14.4	14.5	14.9	15.3	15.7
Light industry	3.1	6.2	8.1	10.6	13.6	14.0	14.2	14.2	14.5	14.7	14.9
Food industry	6.6	8.8	10.0	13.7	15.5	17.5	17.8	17.7	18.0	18.5	19.0
Other industry	5.5	8.1	11.4	15.1	18.5	19.8	20.3	20.9	21.5	21.7	22.4
	2.2	3.2	4.4	5.9	7.7	8.8	8.9	9.1	9.3	9.6	9.9

* Components may not add exactly to total because of rounding.

Table 3

USSR: Average Annual Growth of Per-Capita Consumption

(1982 established prices)

	1955-60	1961-65	1966-70	1971-75	1976	1977	1978	1979	1980	1981	1982	1983	1984	Preliminary 1985
Total consumption	3.7	2.3	5.1	2.6	1.7	2.0	1.0	2.7	2.4	1.8	-0.1	0.7	2.0	0.5
Food	3.2	1.9	4.4	1.5	0.1	1.1	-0.4	2.6	1.2	1.0	0.3	0.3	1.2	-1.9
Soft goods	5.6	2.2	7.2	2.7	3.4	2.5	1.9	3.0	3.3	2.1	-1.5	0.6	2.4	2.6
Durables	10.4	3.9	9.5	9.7	5.4	7.9	3.3	3.6	6.7	6.3	-2.6	1.7	4.6	4.9
Services	2.3	3.1	3.8	2.8	2.4	0.9	2.5	2.2	2.0	1.4	1.5	1.0	1.9	1.5
Housing	3.1	2.5	2.1	1.7	1.4	1.4	1.4	1.2	1.2	1.3	1.3	1.3	1.3	1.3
Utilities	4.7	7.8	5.4	5.3	5.0	3.0	3.8	3.3	3.7	2.7	3.1	3.2	4.1	3.4
Transportation	9.3	9.0	8.2	6.4	5.2	-3.9	2.4	4.1	3.5	3.3	1.0	1.3	1.6	1.6
Communications	5.4	5.7	7.6	5.4	4.2	3.6	3.4	3.9	3.9	3.5	1.3	2.5	3.7	4.1
Repair and Personal care	-2.2	-4.7	3.8	4.6	4.2	3.4	4.9	4.4	4.6	3.5	2.2	3.6	3.3	4.1
Recreation	3.0	2.1	1.7	0.6	-2.6	-0.5	1.7	0.8	1.8	-0.1	-0.9	-1.4	-0.6	0.6
Health	3.4	2.2	3.2	1.4	0.7	0.7	2.2	0.8	-0.2	0.2	1.1	0.5	1.0	0.4
Education	2.5	5.9	3.2	1.5	1.8	1.4	1.5	1.3	1.0	-0.2	1.4	-0.6	1.4	0.1

a Preliminary.

Table 4.

USSR: Growth of GNP and Factor Productivity
(average annual percentage change)

	1966-70 ^a	1971-75 ^a	1976-80 ^a	1981	1982	1983	1984	Preliminary 1985
Gross national product ^b	4.9	3.1	2.3	1.7	2.7	3.5	1.5	1.6
Combined inputs ^c	4.4	4.5	3.7	3.3	3.3	3.2	3.2	3.0
Workhours	2.0	1.7	1.2	0.8	1.0	0.7	0.7	0.5
Capital	7.4	8.0	6.9	6.4	6.3	6.3	6.2	6.1
Land	0.0	0.1	-0.1	-0.1	-0.1	0.1	-0.1	0.0
Total factor productivity	0.5	-1.4	-1.4	-1.6	-0.6	0.3	-1.6	-1.4
Workhour productivity	2.9	1.3	1.1	0.8	1.7	2.8	0.9	1.1
Capital productivity	-2.3	-4.6	-4.3	-4.5	-3.4	-2.6	-4.4	-4.3
Land Productivity	4.9	3.0	2.4	1.8	2.8	3.4	1.7	1.6

^a For computing average annual rates of growth, the base year is the year prior to the stated period.

^b Based on indexes of GNP (1982 rubles) by sector of origin at factor cost.

^c Inputs of workhours capital, and land are combined using weights of 51.2 percent, 45.8 percent, 3.0 percent, respectively in a Cobb-Douglas (linear homogeneous) production function. These weights represent the distribution of labor costs (wages, social insurance deductions, and other income), capital costs (depreciation and a calculated capital charge), and land rent in 1982, the base year for all indexes underlying the growth rate calculations.

Table 5.

USSR: Growth of Industrial Output and Factor Productivity
(average annual percentage change)

	1966-70 ^a	1971-75 ^a	1976-80 ^a	1981	1982	1983	1984	1985
Industrial production	6.0	5.7	2.7	1.6	1.4	2.9	2.9	2.8
Combined inputs ^b	6.3	5.6	5.0	4.7	4.3	4.1	3.9	3.7
Workhours	3.1	1.5	1.4	0.7	0.8	0.4	0.1	0.3
Capital	8.8	8.7	7.7	7.8	7.0	6.9	6.8	6.4
Total factor productivity	-0.3	0.1	-2.2	-2.9	-2.6	-1.1	-1.0	-0.9
Workhour productivity	2.9	4.1	1.3	1.0	0.6	2.5	2.8	2.5
Capital productivity	-2.5	-2.8	-4.7	-5.7	-5.3	-3.8	-3.6	-3.3

^a For computing the average annual rates of growth, the base year is the year prior to the stated period.

^b Inputs of workhours and capital are combined using weights of 42.6 percent and 57.4 percent, respectively, in a Cobb-Douglas (linear homogeneous) production function. These weights represent the distribution of labor costs (wages, social insurance deductions, and other income) and capital costs (depreciation and a capital charge) in 1982, the base year for all indexes underlying the growth rate calculations.

Table 6
 USSR: Gross Fixed Capital Investment
 (billion rubles, 1984 prices)

	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Total Investment	64.2	92.2	128.5	150.9	156.5	161.9	171.0	174.3
By source:								
State	55.3	79.4	111.8	133.1	138.5	143.2	150.7	153.7
Collective farm	5.5	8.6	12.2	13.3	13.4	13.9	14.8	14.7
Cooperative Enterprises and organizations	1.7	2.6	2.7	2.9	2.9	3.1	3.5	3.6
Private housing and apartments	1.7	1.6	1.8	1.6	1.7	1.7	2.0	2.3
By sector:								
Industry	23.6	32.5	44.9	53.3	55.4	57.0	60.1	61.9
Agriculture	10.6	16.0	26.1	29.8	30.5	31.0	32.1	31.0
Transportation and Communications	6.4	9.0	14.4	18.1	18.9	19.9	21.4	22.6
Construction	1.6	3.3	4.8	6.0	5.8	6.3	6.3	6.0
Housing	11.2	15.8	19.2	21.1	22.2	23.7	25.6	26.9
Trade and Services	10.8	15.6	19.1	22.6	23.7	24.0	25.5	25.9

*Source: Narodnoe khoziastvo v SSSR, 1984.

Table 7

USSR: Foreign Trade by Major Region

	1955	1960	1965	1970	1975	1980	1981	1982	1983	1984	1985 ^a
Total Exports	3,085	5,005	7,350	11,520	24,034	49,635	57,108	63,165	67,891	74,384	70,000
Communist countries	2,454	3,790	4,999	7,530	14,548	26,903	31,192	34,136	37,714	42,106	43,000
Developed West	503	913	1,341	2,154	6,140	15,862	17,247	18,849	19,653	21,349	18,100
Less developed countries	128	302	1,010	1,836	3,310	6,870	8,669	10,180	10,524	10,928	8,900
Total Imports	2,755	5,065	7,248	10,559	26,671	44,463	52,631	56,411	59,586	65,327	66,600
Communist countries	2,177	3,580	5,049	6,873	13,968	23,650	26,742	30,816	33,692	38,226	41,000
Developed West	402	1,004	1,465	2,540	9,704	15,721	17,247	18,849	19,653	19,574	18,200
Less developed countries	176	481	734	1,146	2,999	5,092	7,777	6,203	7,175	7,533	7,400

^a Estimated

Table 8

USSR: Estimated Hard Currency Debt to the West

	(million US dollars, yearend)						
	<u>1975</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984^a</u>	<u>1985^a</u>
Gross debt	10,577	17,865	20,865	20,000	20,500	20,400	24,800
Commercial debt	8,947	10,015	13,015	11,300	11,500	11,500	16,700
Government and government-backed debt	3,630	7,850	7,850	8,700	9,000	8,900	8,100
Assets in Western banks	3,125	8,565	8,425	10,000	9,600	10,000	10,000
Net debt	7,452	9,300	12,440	10,000	10,900	10,400	14,800

^a Preliminary

Table 9

USSR: Estimated Hard Currency Balance of Payments

	(million current US dollars)							
	1970	1975	1980	1981	1982	1983	1984 ^a	1985 ^a
Current account balance	58	-4,607	1,914	-175	4,333	4,663	4,484	500
Merchandise Trade balance	-362	-4,797	1,714	200	4,433	4,648	4,434	700
Exports, f.o.b.	2,824	9,780	27,784	27,978	31,977	32,251	31,726	35,000
Imports, f.o.b.	-2,984	-14,577	-26,070	-27,778	-27,544	-27,603	-27,292	-24,300
Net interest	-80	-570	-700	-1,375	-1,200	-1,150	-1,050	-1,300
Other invisibles and transfers	500	760	900	1,000	1,100	1,100	1,100	1,100
Capital account balance	NA	6,522	1,630	5,840	-1,340	1,650	500	6,200
Net foreign borrowings ^b	NA	5,402	-185	3,000	-865	500	-100	4,400
Net change in assets held in Western banks ^c	NA	-395	-235	-140	1,575	-400	400	0
Gold sales	Negl.	725	1,580	2,700	1,100	750	1,000	1,800
Net errors and omissions ^d	NA	-1,915	-3,534	-5,665	-2,993	-6,313	-4,984	-6,700

^a Preliminary estimate.

^b Including additions to short-term debt.

^c A minus sign signifies a decline in the value of assets.

^d Includes hard currency assistance to and trade with Communist countries, credits to the LDCs under military and economic aid programs, credits to developed Western countries to finance sales of oil and other commodities, as well as errors and omissions in other line items of the accounts. Among the omissions is an adjustment for fluctuations in the US dollar vis-a-vis other Western currencies.

Table 10
USSR: Selected Indicators of Agricultural Output

	1955	1960	1965	1970	1975	1980	1981	1982	1983	1984	1985
Value of output ^a (billion rubles)	61.5	76.6	91.7	109.8	107.4	112.8	112.2	119.2	127.4	126.7	126.0
Commodity production (million metric tons)											
Grain ^b	103.7	125.5	121.1	186.8	140.1	189.1	158.0 ^c	180.0 ^d	190.0 ^d	170.0 ^d	190.0 ^d
Potatoes	71.8	84.4	88.7	96.8	88.7	67.0	72.1	76.2	82.9	85.5	73.0
Sugar beets	31.0	57.7	72.3	78.9	66.3	81.0	60.8	71.4	81.8	85.3	82.0
Sunflower seed	3.80	3.97	5.45	6.14	4.99	4.62	4.68	5.34	5.06	4.52	5.23
Cotton	3.88	4.29	5.66	6.89	7.86	9.96	9.64	9.28	9.21	8.62	8.75
Vegetables	14.1	16.6	17.6	21.2	23.4	27.3	27.1	30.0	29.5	31.5	28.0
Meat	6.3	8.7	10.0	12.3	15.0	15.1	15.2	15.4	16.4	17.0	17.1
Milk	43.0	61.7	72.6	83.0	90.8	90.9	88.9	91.0	96.5	97.9	98.2
Wool	.256	.357	.357	.419	.467	.461	.460	.452	.462	.463	.442
Eggs (billion)	18.5	27.5	29.1	40.7	57.4	67.9	70.9	72.4	75.1	76.5	77.0

^a Net of feed, seed, and waste, in constant 1982 prices.

^b Bunker weight. To be comparable to Western measures, an average reduction of 11 percent is required.

^c Unofficially reported.

^d USDA estimate.

Table 11

USSR: Freight Turnover by Transport Mode

Billion ton-kilometers								
	<u>Total</u>	<u>Railroad</u>	<u>Road^a</u>	<u>Inland Waterway</u>	<u>Maritime</u>	<u>Oil Pipeline</u>	<u>Gas Pipeline</u>	<u>Air</u>
1955	1,130.0	970.9	9	67.7	68.9	14.7	b	0.2
1960	1,814.2	1,504.3	27	99.6	131.5	51.2	b	0.6
1965	2,670.9	1,950.2	50	133.9	368.8	146.7	b	1.3
1970	3,803.8	2,494.7	64	174.0	656.1	281.7	131.4	1.9
1975	5,240.4	3,236.5	97	221.7	736.3	665.9	280.4	2.6
1980	6,480.0	3,439.9	131	244.9	848.2	1,216.0	596.9	3.1
1981	6,699.5	3,503.2	140	255.6	853.5	1,263.2	680.9	3.1
1982	6,785.7	3,464.5	143	262.4	834.5	1,306.8	771.5	3.0
1983	7,126.7	3,600.1	142	273.2	891.7	1,353.1	863.4	3.2
1984	7,345.0	3,638.8	138	264.3	933.0	1,370.2	997.3	3.3
1985 ^c	7,463	3,719	142	262	893	1,313	1,131	3

^aCommon carriers only.^bComparable data on gas pipeline shipments are not available for the years indicated.^cPreliminary.

Mr. MACEachin. First, sir, I would like to apologize for my trouble adjusting this mike.

Representative SCHEUER. You're coming in loud and strong.

Mr. MACEachin. Sir, complaints about my voice level usually go the other way.

But if I could turn and briefly review our assessment of the Chinese economic performance.

Representative SCHEUER [presiding]. Excuse me. I wonder, since Senator Proxmire will be back in 5 or 10 minutes, whether you could defer starting on China. I really don't want him to miss that.

Let me just ask you a couple of questions about Russia, if I may. We'll sort of tread water for a few minutes until Senator Proxmire returns.

INCREASE IN ASIAN POPULATION

Let me ask you one question. It may seem a little bit irrelevant to what we have been discussing, but maybe it isn't entirely.

There is an enormous explosion in the Asian population in Russia, in the Moslem population in Russia. We've heard rumblings that the Moslem population listens to the Ayatollah Khomeini. There is a considerable Shi'ite population in Asian Russia.

I've heard—I can't remember where—that in a decade, 40 percent of the recruits into the Russian Armed Services are going to be of the Moslem persuasion.

From the point of view of the quality of the Russian military, the controllability of the troops, the reliability of their troops, the economic implications of this, what does the exponential increase in their Asian population mean to the Soviet Union and as a security threat to us? Does it have clear implications?

Mr. MACEachin. I'll try that one.

The first problem that comes out of this demographic trend affects the civilian side—skilled labor in high-technology services and in the military services, special skilled jobs.

The situation you describe is one in which the ratio of what we call the Slavic population to the non-Slavic ethnic groups is shrinking. In the military, for example, they have problems getting the kind of noncommissioned officer and warrant officer support that our own armed forces have and are accustomed to, and which some of us always thought provides the backbone. It is also a problem in, for example, the stationing of forces in certain border areas, sensitive areas.

We do know that in the early days of the Soviet invasion of Afghanistan, for example, many of the troops in their forces that initially went in were from the adjoining military districts and were of Kazakh and Turkic extraction, and had ethnic and Muslim affinities, at least, with the Afghan people.

I don't know to what extent, because the information is limited, this really caused a great problem, but [security deletion] they subsequently changed the profile of their free competition.

I'm not sure any of us is an expert on the demography in the group.

Mr. WHITEHOUSE. In terms of the economy, sir, it is true that the Moslem population will grow as a share of the labor force over

time, given the birthrates, but the Slavs will still retain their majority, when you consider the total population. It does pose problems in terms of high skilled sectors of the economy, particularly in the high-technology areas that Gorbachev will be emphasizing over the next 15 years. The Soviets will have to revamp many of their educational programs. This is true, both for the Slavic population and the Moslem population. It makes life a little more difficult and a little more costly for them, but it is not something that they cannot adapt to.

We have little hard evidence of major ethnic clashes, between the Moslem groups in the Turkic republics and the Russians. So the increase in the Moslem population does not present a threat to the leadership in this century, at least.

Mr. MACEACHIN. I might add, sir, that the chief sources of dissidence in the Soviet Union are not from the Asian minorities, but more from the Baltic regions—Latvians and Lithuanians. There is no question, from time to time, various Soviet scholars address this problem, but they don't seem to see that as a current source of social upheaval.

GORBACHEV'S LONG-TERM GOALS

Representative SCHEUER. About the nature and quality of this man that we are dealing with, Mr. Gorbachev. He seems to have taken the world by storm. He is charming, he's effective. He knows how to use the media. He seems to understand the West. He seems to be a great manipulator of public opinion. Of course, everybody is wondering, you know, what's he all about and where is his head at?

What is your opinion about what his long-term goals are? I am sure he is smart enough to understand that the Soviet Union's domestic economy is a basket case and it is not likely to improve, unless they substantially reduce the percentage of their GNP that is going into the military, not only in terms of funding, but in terms of talent, in terms of educated people, managers, engineers, scientists, the like, until they can focus their forces, as well as the percentage of GNP that is devoted to defense, into the domestic economy.

Is he really intent on finding ways, using his initiative, his resourcefulness to find ways to have a mutual deescalation of arms, so that he, and incidentally we also, can start reallocating resources into our domestic economy, out of defense and into our domestic economy, or is he playing games with us? Is he trying to lull us into a state of relaxation, while he perhaps quietly, surreptitiously builds up defense, lulling us into a state of calm and smug feeling that the danger is less, when, in fact, he is just as much intent on world domination as his predecessors? Has he discarded this old business of fomenting revolution around the world, dominating the world? Is he content to improve the quality of life in Russia, or is he just an old apparatchik in little more elegant Western clothing and a more elegant way of expressing himself.

Mr. WHITEHOUSE. There are a number of subtleties in those questions, and I will try to address them one at a time.

Mr. Gorbachev views himself as the leader who will bring the Soviet Union into the 21st century in a way in which it will be competitive, both economically and militarily, with any of the powers in the West.

We believe Gorbachev has a long-term, 15-year agenda, as opposed to a 5-year game plan. In that context, in some respects, the 12th Five-Year Plan may be more rhetoric than real. Traditionally, the annual plans have been the operational plans and we believe that this will continue.

Mr. Gorbachev's overall game plan is to modernize the economy, thoroughly and completely, by the turn of the century, not to do it in the next 1 or 2 years. In order to accomplish this, he is focusing on human factors, to raise the productivity of the labor force. He is changing personnel, increasing discipline, and carrying out a temperance campaign, and also substituting capital for labor, not only in high-technology areas but in some of the low-technology areas that employ large quantities of manual labor.

Those are some of the hidden resources that he refers to. To a certain extent, we think he will be able to substitute capital for labor which would enable him to shift some workers into other more labor-intensive industries that produce machinery, such as electronics. With some training, for example, employment in labor-intensive operations such as production lines turning out small coils, for electric motors, and the like, could increase substantially.

Therefore he can raise labor productivity by increasing discipline, and by increasing substitution of capital for labor. At the same time, he must increase investment spending to modernize the capital stock. Here, his focus is on high-technology industries, such as electronics, robotics and microbiology. He will spend a good deal of resources on them. But he knows it will take a long time to turn over the old capital stock. It won't occur quickly, but rather, gradually.

Representative SCHEUER. How about his intent over the long haul? What is his 15-year plan, in terms of ultimate reduction of the percentage of GNP that is going into defense and shifting that into his domestic economy, his domestic society, thereby liberating us to do the same thing?

Mr. WHITEHOUSE. He hasn't voiced any such plan, and we don't know that he has such a plan.

Mr. MACEACHIN. In fact, if I could address that question, sir, you actually asked several subtle questions. One was, who is Gorbachev? He is not just an apparatchik, in the sense that he has had quite a remarkable political career inside, but he is clearly from everything we've seen so far, a dedicated Leninist. I will use that term, as opposed to Marxist. He believes in the Soviet system. He is prepared to be flexible in some of its applications. He is prepared to give where he needs to give a little to permit some public debate, if that is helpful to his ends. But he has only criticized his predecessors for failing to use the power and exercise the system correctly, not the system itself. As regards his long-term plans, this was not born fresh and new with Gorbachev, the industrialization issue, and the continued slippage of the economy from both the standpoint of per capita GNP, as well as from the standpoint of the abili-

ty to compete with Western technology, are issues which have come up in the last several years, in public, as well as in private.

He appears to have dealt with his military, who would probably not sit still for any discussions on reducing their share of the Nation's wealth for a second.

He has, we believe, brought them on board, with respect to his long-range goal of industrialization—first by indicating that for the next few years, at least, the things that the Soviets had intended to produce for the military forces—the major weapons systems, at least—will be produced.

Second, in some respects, he's exploited their own concern, their own behalf that the defense—industrial base is the key to their long-range military competitiveness.

In sum, everything we've seen about Gorbachev indicates that he is dedicated to U.S.S.R.'s long-term strength as a superpower. He believes that his predecessors let the country down on that, and that he intends, through his program, to get them more strongly moving toward maintaining that superpower status.

The military will remind him that it was through military power that he achieved that superpower status. He is not going to be able, I don't believe, to change that approach to the East-West confrontation.

Admiral Schmitt.

EXPORTING REVOLUTION

Admiral SCHMITT. You asked a question, sir, about exporting revolution, whether Gorbachev was following that. In the year that he has been in power, we see no abatement of support of revolution abroad. In fact, we've seen some very decisive action on the part of the Soviet Government, particularly in the case of Yemen, when the uprising occurred there, it caught even them by surprise.

Once they chose a partner to build a future with, they backed him fully, and that was both diplomatic and with material support.

Representative SCHEUER. Is that the materials of war?

Admiral SCHMITT. Material support; yes, sir.

In the case of Angola, we have seen continuous upgrading of the support of the Angolan Government. Mozambique, continued Soviet support. Military support now, and an indication of some minor economic support going to that country.

In Nicaragua, the levels of military-related goods going in there still remain high. They are increasingly shipping goods through Cuba.

Representative SCHEUER. What do you mean by military related?

Admiral SCHMITT. That would be things like trucks, tents, and medical facilities.

Representative SCHEUER. We have had our medical facilities as part of humanitarian aid.

Admiral SCHMITT. Yes, sir.

Representative SCHEUER. You had medical facilities coming on the other side, as part of the material of war.

Admiral SCHMITT. Yes, sir. It depends on how they are used.

Representative SCHEUER. Don't you see a slight anomaly there?

Admiral SCHMITT. Yes, sir.

Representative SCHEUER. How about military hardware itself? Kalashnikov rifles. Are they shipping the implements for killing people to the Sandinistas?

Admiral SCHMITT. Not to the degree they were in previous years. That has gone down by a factor of about two-thirds.

When you look at the other aspects that get the guns to the front and get the ammunition to the front, that sort of thing, they are continuing that sort of support. And when you look at civil aircraft, it has a bigger use. It could be used either way. In Nicaragua, they use it primarily for military reasons. That is the increasing support.

Representative SCHEUER. What is increasing?

Admiral SCHMITT. Aircraft support to the Nicaraguan Government, most of which is going into the support of military operations against the Contras.

MILITARY SPENDING AND CAPABILITIES

Representative SCHEUER. Let me ask one more question, before I yield back to the chairman.

You've described, both of you, I guess, how the Soviet increase in resources going to the military has increased by, I gather, variously, 1 percent or 2 percent a year. One percent in procurement and 2 percent overall. Something like that, which is a fairly low level of increase, yet, at the same time, you describe how they've radically improved the capability of their armed services, the conventional forces. They have enormous export of materials, of the materials of war all over the world, and so forth.

How have they managed to achieve this great superpower status, of radically improving their own defense capability and carrying on enormous war materiel, if they have only a miniscule increase in the funding? How come they are so much smarter than we are?

Mr. MACEachin. Sir, the answer to that question is the amount spent each year on a continuing basis. Now I would like to check this figure to be certain, but I think our calculations are that the cumulative spending from 1975 to 1984, the cumulative spending in dollars of the Soviets exceeded those of the United States by \$500 billion. It is a matter of them reaching a very high level and sustaining it at a low growth rate while the United States has been chasing that level. That is the source of the difference.

Representative SCHEUER. Thank you very much, Mr. Chairman. We've had a very interesting discussion while you were gone.

ECONOMIC REFORM

Senator PROXMIRE [presiding]. Thank you, Congressman Scheuer, very much. I appreciate your coming over. Before you came in, I said that the press and the academic community have said, these are the best hearings that they get all day, or have over the year, certainly, on this subject. Of course, it is a sanitized version they get. Still, it is extraordinarily helpful to them, but they don't get it with the same kind of authority from any other source.

Director MacEachin, as I read what was said at the recent Party Congress, the signals about the future course of Soviet economic policy are confusing. Can you state whether Gorbachev intends to

institute a basic—and I repeat, basic—economic reform, in order to achieve modernization, or will he stay within the Russian system?

Mr. MAC EACHIN. Sir, if I interpret your question as moving away from the present system and closer to such things as some free market, some fundamental change from the central planning—

Senator PROXMIRE. Either that or any other kind of basic reforms, other than the fact that they have made some progress with respect to drug abuse or rather alcohol abuse in the Soviet Union.

Mr. MAC EACHIN. Let me give you my view and ask my colleague, Mr. Whitehouse also. My description and my perception of Gorbachev is that he is going to stick basically to the current model of central planning, that he is going to take steps in management of the model and try and make it more efficient, but there was nothing at the Party Congress, despite his use of the term "fundamental restructuring," that suggests that he means the term "restructuring" as we would mean that.

Senator PROXMIRE. So there is nothing like what's going on in China?

Mr. MAC EACHIN. No, sir.

Senator PROXMIRE. Yes, sir.

Representative SCHEUER. May I interject? We've heard reports that they're giving plant managers far more discretion, and they are decentralizing the responsibility. If so, that is a rather fundamental reform.

Is that true?

Mr. MAC EACHIN. That's fundamental from their standpoint, but the basic central planning, the setting of goals will be sustained.

One way of looking at this is, there were too many layers between the central planners and the implementers, and one of the things he is doing is cleaning out some of that intermediate layer, but the pyramid is still there.

Mr. WHITEHOUSE. That is correct. They would like to have it both ways, sir. They want strong central control over the major decision-making process, but they know that at the center they cannot control every decision that has to be taken in an economy of that size. Therefore, they would like the enterprise managers at lower levels to take more initiative and to give them more authority to make day-to-day decisions. But that is not to say that the enterprise manager will be able to determine everything that he is to produce or even those major quantities that he will be able to produce. Those decisions will be determined for him from above.

Gorbachev knows full well that many of the economic problems are the result of central planning, inflexible processes of decision-making, and too much bureaucracy between the top and the bottom. So he is trying to consolidate some of the bureaucratic layers within the system, and to increase initiative at lower levels. He has shown no indication that he intends to change the price system, and that is a major stumbling block. Price formation is set centrally, and this is not likely to change, as far as we can tell, although Gorbachev and others at the Congress have talked about the necessity of having prices better reflect supply and demand.

But here they are talking about having the central authorities set prices and change prices, perhaps, more frequently to try to re-

flect supply and demand considerations. They are not talking about a free-market type economy or even a Yugoslav-type economy.

INCONSISTENCIES IN PLANS

Senator PROXMIRE. Director MacEachin, how do you explain the inconsistencies and ambiguities in the various versions of the annual plan for 1986, the twelfth 5-year plan and the fifteen year plan? Are these serious operational plans? And if not, is it not likely that imbalances in performance will occur and bring about the very conditions of inefficiency, waste, and bottlenecks that Gorbachev and Ryzhkov complained about in the plans of their predecessor?

Mr. MAC EACHIN. I think that the first answer to your question is that we look at the 1986 plan as the operational plan which is in effect, and the 5-year plan is something which we look for to either be changed, or if it is not, the impetus given to this growth by the 1986 plan will just trickle away. How do you explain those apparent differences? We can only speculate.

Senator PROXMIRE. They do it one day at a time, just like we do in the Congress.

Mr. MAC EACHIN. There is one explanation, sir, that is coming out of the Soviet Union that says we didn't have time to fix the 5-year plan, that in fact, they would liked to have done so, but they had the Party Congress coming up. It would have been harder in the time we have available to get all of the details of the 5-year plan worked out, to get all of the bureaucracy beaten back, to get everything lined up.

So Gorbachev may have put some preliminary targets in the 5-year plan, and instead, focused his efforts on getting off to a fast start with the 1986 plan. In fact, if I recollect, on one of the occasions when Gorbachev sent the 5-year plan back, remanded it, he commented that it did not set the early year goals high enough, that because of the way it was structured, the U.S.S.R. would be running in the last few years of the plan to catch up with its 5-year targets and make the overall goals.

So we aren't certain as to what is behind it, the inconsistency. We think, however, that internal politics has a lot to do with those inconsistencies.

Mr. WHITEHOUSE. I would also add that traditionally what the Soviet cannot achieve through increased inputs of labor and capital, they plan to achieve through growth in productivity. However, they never fulfill the 5-year plan, so there is no real reason to suspect they are going to fulfill all of the goals of this one either. But Gorbachev has set high goals particularly for the 1990's, in order to sustain the enthusiastic tone that he has set since he took office last year. I am not certain that he ever believes he can achieve the high rates of growth postulated in the 1986 plan, even though he probably considers it his operational plan. But we believe, he feels that if he didn't set high goals in the 1986 plan, he would be fostering the continuation of a lethargic attitude toward moving forward at a higher rate of growth.

By setting high goals, Gorbachev may achieve more than he would otherwise. I think that is a basic tenet in the Soviet planning system, and Gorbachev is using it to this advantage.

PRIORITY OF THE DEFENSE INDUSTRIES

Senator PROXMIRE. May I ask you this, Director MacEachin—you've mentioned that the Soviets are transferring some of the managers and operating characteristics from the defense industries to the civilian sector. What impact do you foresee this having on the priority of the defense industries?

Mr. MACEachIN. Mr. Chairman, the recent changes we have observed in the management of such sectors crucial to industrial modernization as civilian machine building and computers appear intended to give those industrial sectors the advantages of priority attention enjoyed by the military-industrial complex since long before World War II. Late last year, the Soviets established a Machine Building Bureau in their Council of Ministers to oversee all civilian machine building, and just recently they also set up a State Committee for Computer Technology and Information Science. The jurisdiction and responsibilities of these organizations have yet to be clearly defined: For example, two of the ministries producing computers and related components—the ministries of the radio and electronics industries—are defense industries and already come under the oversight of the Military-Industrial Commission. We are uncertain how these attempts to share priority will allow these sectors to challenge defense industry or other sectors for resources.

Senator PROXMIRE. Admiral Schmitt, what is your view of the assessment of the potential conflict between military and civilian production over basic materials, intermediate goods, such as microprocessors and skilled labor? Will the defense slowdown persist unless the Soviet economy resumes the path of sustained rapid growth, or will the military continue to get first priority, even if the economy slumps?

Admiral SCHMITT. I think the latter, sir. We think that, as my statement indicated, in the short term, the military will acquiesce, if you will, to some infrastructure investment in the economy.

MILITARY STRENGTH AND ECONOMIC STRENGTH

Senator PROXMIRE. Could I interrupt at that point.

It seems to me that the long-term buildup of Soviet military strength depends, as it does in any system, on the buildup of their economy. Therefore, it would seem to me in the long term, and Gorbachev is the first head of the Soviet Union in my memory who's been young enough to look forward to maybe 20 years of leadership, with that long-term view, it would seem to me that he could look forward to a situation where the Soviet Union would be much stronger militarily, if he put more emphasis on the economy rather than on the immediate short-term military objective.

Admiral SCHMITT. I think in the Western view that would be correct, sir, but in the Soviet view, the way they have operated historically, that's not been born out. They have consistently put the military resources at the head of their priority list for resource consumption, and we see, in the short term at least, the Soviet mili-

tary leadership acquiescing to attempting to get the economy, as a whole, built up, but if that does not prove out, if there are failures in that area, we see them reverting back. We don't see any Soviet elite group, 5, 6, 7 years down the pike, with a failed economy, not demanding first priority resource consumption for military purposes.

TEST IN 2 TO 3 YEARS

Senator PROXMIRE. Director MacEachin, according to the statement, the test of Gorbachev's support will come in 2 or 3 years, when the new demands for expanding and renovating the defense industries begin. The defense industries have to start preparing to produce new generations for weapons.

Are you projecting or does that imply a possible political crisis in the near term? Will Gorbachev be in real trouble, if he does not turn the economy around?

Mr. MACEachin. Mr. Chairman, I don't know if crisis is the right word, but we do see the possibility for a strong clash of political wills, and we think that Gorbachev, himself, may anticipate that, and that, in some respects, explains a good deal of his efforts in the foreign policy area, to attempt to promote an atmosphere in which he will be in a stronger position to deal with the situation when it arises.

We think also that he is gambling that he can show demonstrated gains in productivity, if not, perhaps, the full amount he has set for himself, but at least enough to demonstrate his plan is working.

Senator PROXMIRE. What do you mean by what Gorbachev is doing in foreign policy?

Mr. MACEachin. If in 1988, there is a strong demand for a major cutback in his industrial modernization or, in effect, the military and certain political leaders say, we've waited long enough, it is time to accelerate construction of plant and equipment for the military-industrial sector, Gorbachev will have difficulty under any circumstances. It will be much more difficult for him if the United States appears to be moving ahead, strongly, with its own defense programs.

It will also be better for him, if he can demonstrate that whatever his policy has or has not done with regard to the United States, it has opened up channels, for which there is access to Western industrial technology, from Europe or Japan.

ARMS CONTROL

Senator PROXMIRE. Are you saying Gorbachev really does want arms control to reduce the burden of the military arms race?

Mr. MACEachin. No, sir. Although it also would be wrong to say that arms control wouldn't help him.

Senator PROXMIRE. It is wrong to say that arms control would help him?

Mr. MACEachin. Would not. It will help him in the long term—whether that's the avenue they take, is another question—because, first, as I mentioned, the arms control proposal, which he designed, and which he has presented, both in late September and again expanding in January, will accommodate the deployment of all these

new systems that have been projected, and the cuts will come about by retiring old systems.

Senator PROXMIRE. But that arms control proposal that he projected was really pie in the sky. I can't believe that anybody in the Soviet Union or anywhere else took that seriously. It was so comprehensive, it proposed not only the end of nuclear weapons on earth by the year 2000, but also a substantial cutback in conventional forces, the elimination of chemical forces, and so forth. It seemed to me to be pretty transparently a public relations proposal.

Mr. MACEachin. Yes, sir. I agree with you. In fact, I agree with you so much, I was only focusing on what he called his phase 1, the immediate reductions and limitations and the expansions on his September 29 proposal.

Senator PROXMIRE. So what is he doing in foreign policy that would help his domestic economy?

Mr. MACEachin. First, he is holding out the prospect for arms control. He is trying to show himself as a major innovator in this field. He has recognized that he has a much better opportunity to promote relations with the West Europeans during a period in which there is at least the appearance of better relations between the United States and the Soviet Union. And to the extent that his policies can create an atmosphere that undermines Western willingness to sustain its major defense programs, if these things are questioned, it gives him, in effect, breathing space.

Over the longer term, if his industrial modernization plan works, he would be tougher.

SIGNIFICANCE OF 1985 ECONOMIC PERFORMANCE

Senator PROXMIRE. Would you say that the results of 1985, an anemic 1.6 percent in GNP growth, but a fairly good performance in industrial production, means Gorbachev got off to a good start, or did he stumble?

Mr. MACEachin. No, he did not get off to a good start. But we think he can take some credit for it being not as bad as it might have been.

Mr. WHITEHOUSE. The 1985 period does give Gorbachev a good political start in the following sense:

The gains made in the latter part of last year were easy to achieve because of the poor performance in the first part of the year. If you will recall, last winter in the Soviet Union, there were very severe weather conditions, which hampered industrial production seriously. In fact, production lagged so bad that they didn't publish monthly statistics for a few months. But after Gorbachev came to power which coincided with the end of the winter, he didn't have to do very much to get a stimulus to growth, because there was a rebound effect, and the year ended on a high note as far as industry is concerned.

That high note has continued into 1986—at least in the first few months, because of the rebound from the very poor performance in the early months of 1985. I'll give you a precise example that will size the problem for you. The Soviets recently reported an 11-percent increase in steel production in the first 2 months of this year

compared with the first 2 months of last year. This is an industry that has been relatively stagnant for a long period of time. But if you compare this year's 2-month production with the first 2 months of 1984, you see that, indeed, it wasn't 11 percent, it was 1 percent on an average annual basis over the 2-year period.

So the point is that the rebound effect makes the statistics look very good by implication, creates the impression that Gorbachev is responsible for them. Indeed, we think he is doing some things, but he cannot take credit for all the increase that has occurred since he came to power. We expect he will get some gains in labor productivity just by shifting people around and shaking the system up. His temperance campaign will have an impact, but it will not sustain growth over a long period of time. Even Ryzhkov himself, in his speech to the 27th Party Congress noted that only one-third of the planned increase in labor productivity during 1986-89 was expected to come from the so-called human factors. Two-thirds was expected to come from substitution of capital for labor.

Senator PROXMIRE. Representative Scheuer.

Representative SCHEUER. I have no further questions, Mr. Chairman.

PLAN FOR 1986

Senator PROXMIRE. Director MacEachin, Gorbachev launched a very ambitious plan for 1986. I know it is early, but based on performance so far, what are the prospects for this year, and if it is unlikely that the targets would be met, why would Gorbachev put himself in the position of failing in the first year of the 5-year planning period?

Mr. MAC EACHIN. I think, Mr. Chairman, that he has set these plans high, because, first, he knows that if he doesn't get his programs off the mark quickly, he has little chance of succeeding in his longer range goals. What will be the measure of failure, I'm not certain.

Senator PROXMIRE. One measure is, you don't meet your scheduled achievements, which you put so high, that it is pretty clear he wouldn't meet it.

Mr. MAC EACHIN. Well, let me ask Doug to give you the details. I would like to address the question of what happens as the plan goes on.

Mr. WHITEHOUSE. Indeed, he may not meet the actual growth goal, but what he has to do is create the impression among his managers, the work force, and the general public that some significant improvement has been made. In that context, he is putting a lot of eggs in the agricultural basket. For example, qualitative and quantitative improvements in the diet go a long way toward convincing the Soviet consumer that his lot is better. This could make the Soviet consumer more amenable, if you will, to working harder, as Gorbachev is calling for.

Senator PROXMIRE. But what are the prospects for that improvement?

Mr. WHITEHOUSE. So far the prospects for 1986 seem fairly good, because the outlook for a good crop is about 50-50 right now. Crops have wintered over in pretty fair shape. They had a little more

winter kill in some areas than normal, but that can be made up in spring planting.

So barring a major disaster in weather between now and August, the crop situation looks fairly good.

Mr. MACEachin. Mr. Chairman, I would like to address your question in the larger context of success or failure for Gorbachev's plan and its long-range objectives. I think that I and all of us who have looked at the details of both the 1986 plan and the twelfth 15-year plan and have looked at the Soviet economy have grave reservations about the possibilities for success.

There are too many large claimants, as you've noted for the already large investment figure which he has given. The levels which he has prescribed, the investment targets which he has prescribed, 30 percent for civilian machinery, 31 percent for petroleum extraction, 27 percent for the coal sector, whether he is going to achieve all those targets is, I think, a point upon which all of us have major reservations.

On the other hand, if he can show that he has made some progress and that things are at least better than they were, he has an option at that point—which some have suggested he may take—to complain that the cause of his failure to achieve his goal is that he has been forced to take half measures. But this is a highly politically risky course for him to take.

We can all remember an earlier General Secretary who had a short tenure in office, because he alienated too many parts of the bureaucracy and the military too quickly and did not produce results.

So in sum, success for him may be to show progress, even if he doesn't hit exactly the targets he's stated.

ENERGY

Senator PROXMIRE. Director MacEachin, would you give us the CIA's latest energy assessment, discussing last year's decline in oil production? We know that the Soviet Union is the biggest oil producer in the world and a big exporter.

What's happened so far this year and the effects of the price reduction on Soviet hard currency earnings, it seems to me that should be almost as bad news for the Soviet Union as it is good news for the United States.

Mr. MACEachin. Yes, sir. It is bad news for the Soviets. It is doubly bad news, as you've indicated. Their production has been slipping. It was down to 11.9 million barrels a day last year.

So that is down from a goal of about 12.6 million barrels per day. At the same time their production is falling off, the world price of oil has collapsed, at least from their viewpoint, and that is biting into their hard currency earnings drastically.

Mr. Whitehouse has some figures he can give you on that.

Senator PROXMIRE. Before he gets into that. I'd like to ask him also to cover whether or not the energy sector is now operating as a constraint on economic growth, and will problems in that area hurt chances for modernization.

Mr. WHITEHOUSE. The short answer to that question is, no, sir. At the moment the energy sector is not operating as a constraint on economic growth.

As you correctly pointed out, the Soviet Union is the world's largest producer of oil, producing approximately 12 million barrels a day on average for the last several years, even though it declined in the last year to 11.9. It consumes domestically about 9 million barrels a day and exports the rest, about half of that to Eastern Europe and the rest to the West for hard currency.

The decline in production last year was indicative of major problems they are having in their fields and have been having for some time.

OIL PRICES AND EXPORTS

We expect that this year's production will be about the same level, if not a little lower, than last year's. The biggest problem the Soviets are having is manifest in the oil price decline. Last year they lost about \$3 billion because of the decline in the volume of oil exports. We expect that this year, they could lose upward of another \$6 to \$7 billion, about \$4.5 to \$5 billion of which could occur because of the price drop, if the price stabilizes at around \$15 a barrel.

The other \$1.5 to \$2 billion would be due to a further fall in production and a drop, consequently, in export volume. The loss of \$6 to \$7 billion in hard currency earnings will be compounded by the depreciation of the dollar vis-a-vis other currencies.

About 70 percent of Soviet purchases are made in hard currencies other than dollars and roughly two-thirds of their exports to hard currency countries are valued in dollars.

Therefore, a 20-percent drop in the value of the dollar vis-a-vis the market basket of European currencies used to value Soviet purchases would amount to about a 15-percent drop in Soviet purchasing power this year.

What could the Soviets do about that?

Well, in 1985, they stepped up borrowing and increased gold sales, and they managed to cover the \$3 billion loss in that manner.

In 1986, we expect it is going to be more difficult for them. We expect they could easily get another \$1 to \$2 billion through syndicated loans from major Western banks, and they could draw down their assets that are currently held in major Western banks by about \$2 billion. They currently hold at least \$10 billion, and without hurting their liquidity position, they could draw that down by about \$2 billion.

Senator PROXMIRE. I am going to interrupt. Your responses have been very good, very detailed, and very helpful. Unfortunately, we do have a time problem here, so I am going to ask—I have a number of questions which I am going to ask you to make your responses as concise as possible from here on.

DIA ENERGY ASSESSMENT

Admiral Schmitt, DIA has disagreed with the CIA's energy assessment in the past. In general, you have been more bullish about prospects for production.

Is there any different view from CIA, from the present CIA's view in your agency today?

Admiral SCHMITT. As far as the past year, no. We agree on the figure of 11.9 million barrels per day. This year we do not see a decline that the CIA is forecasting in the gas area. We see a rapid growth in production. And we think that production of coal has turned around, so we are still bullish.

MILITARY SPENDING

Senator PROXMIRE. Director MacEachin, I would like to discuss the defense sector.

As I understand this statement, you are now dating the slowdown in the growth of military spending from 1974, somewhat earlier than in previous estimates. And both agencies agree that overall annual defense measured in dollars dropped from 4 percent to 2 percent beginning in that year.

What has caused you to extend the slowdown back to 1974? You're shaking your head.

Mr. MAC EACHIN. No, I said it—I may have misled you with my answer; 1974 was the last year of really high, extremely high growth. About 1976 is where we see the leveling off; 1973 and 1974 were years in which they modernized their strategic forces and spending shot right up.

Senator PROXMIRE. There was a drop off in 1975?

Mr. MAC EACHIN. I think it's 1975.

Senator PROXMIRE. The statement says 1975, at one point it says 1974. That's why we asked the question.

Mr. SWAIN. In the recently completed reassessment of defense production that DIA and CIA both participated in and referred to earlier, in changing some of the early production around that reassessment, we now believe that the slowdown in procurement growth began in the year 1975. That is, 1975 over 1974, was the first year of slow procurement growth. That is a change of 1 year from what we were saying last year and results from different phasing of weapons production.

Senator PROXMIRE. The statement says that both agencies agree that weapons procurement measured in dollars increased at a roughly 1-percent rate annually between 1975 and 1974, and that the CIA concludes procurement spending has been flat since 1981.

Do you mean to say that the overall slowdown began before procurement slowed, or did they both slow down at the same time?

Mr. Swain. The slowdown in overall growth is a direct consequence of the slowdown in procurement. I think both agencies would agree that procurement was running at about 1 percent from 1975 to 1982.

We have a divergence of views about what has happened, sir. CIA estimates procurement from 1982 through 1984, as being essentially flat, whereas DIA shows continued growth during the same time period.

CIA AND DIA ESTIMATES COMPARED

Senator PROXMIRE. Admiral Schmitt, according to the statement, DIA agrees that the slowdown took place in 1981, but that major weapons procurement increased by 3 or 4 percent during the period 1982 to 1984. Your estimate included only 70 percent of the weapons and equipment included in the CIA's estimate.

Can you discuss the reasons DIA excludes so much hardware from its estimate and whether the excluded items account for the difference in the results.

Admiral SCHMITT. We look at the 70 percent that includes the major weapons systems that the Soviets produce, those that really attract the attention of the Defense Department, those systems that we have to fight against. They do not include the support equipment that is necessary for the combat forces.

Senator PROXMIRE. Would that explain the difference between the two agencies?

Admiral SCHMITT. It could explain it; yes, sir. I can't say that it really does. Those major weapons systems are the ones that are more highly technical, with more cost per unit, the area where the cost-growth curve is higher than on the support side. That could explain part of it.

Senator PROXMIRE. So that they are putting less in high technology than we are; is that right?

Admiral SCHMITT. No, I was taking the weapons systems themselves, the 70-percent item.

Senator PROXMIRE. The 70-percent item would or would not include the high technology?

Admiral SCHMITT. It would, and that would explain the more rapid cost growth of our systems over theirs.

Senator PROXMIRE. I realize this is a complicated situation. We've been informed, and this is an unclassified publication, by the Under Secretary for Research, that of the 20 most important military technologies, that the United States leads in 14, we're tied in 6 and the Soviet Union leads in none.

Would the explanation here be that because they are behind us, technologically, that it is more costly for them in high technology than it is for us?

Admiral SCHMITT. To get the high technology, they have to progress, even though they are taking on some of our technology—stealing some of our technology.

In taking that from the technological stage to the manufacturing state, they have a high investment, so yes it is more costly.

Senator PROXMIRE. I am just going to ask you for the record, you don't have to respond orally at the moment, but can you discuss the differences between DIA and CIA over weapons production? I take it these differences concern quantities of production and methodological differences over unit costs.

[The following information was subsequently supplied for the record:]

CIA and DIA characterize the differences between their estimates of Soviet military procurement costs as resulting from differences in both production quantities and costing methodologies.

QUANTITY DIFFERENCES

[Security deletion.]

METHODOLOGICAL DIFFERENCES

Even if agreement were reached on the quantities of Soviet weapons production, the procurement cost estimates would still differ both in levels and trends because of how each Agency performs its calculations. Both Agencies use the same initial costs and learning curves for individual weapon systems. Where the two agencies differ, however, is on the application of the learning curve. The CIA applies a learning curve throughout the entire production run of a given program so that the last unit produced is less costly than the first. In this way, the CIA attempts to replicate the U.S. experience of declining unit costs over the life of a production program. In contrast, the DIA uses the average cost of the weapon system, based on the estimated production estimates through 1985 and applies that cost to its yearly production estimates for that system. DIA uses this approach so that the cost trends reflect a constant price series.

These two approaches will yield the same costs for the cumulative production program of a single system, but different yearly costs. Because these yearly individual differences tend to be offsetting when aggregated with other systems, the overall difference is lessened, especially if new systems continue to be introduced at a steady rate.

DIFFERENCES IN PROJECTIONS

One final source of difference between the CIA and the DIA estimates of Soviet military procurement costs is in each Agency's projections of Soviet military production [security deletion]. In most cases, projected production will have no impact on costs in the 1981 to 1984 timeframe because the production is both undertaken and completed in the same year as delivery. This is not the case with ships and submarines, however, where the procurement costs begins several years prior to delivery. Each Agency estimates some future ships being completed in different years and different quantities.

MILITARY SPENDING AND CAPABILITIES

Senator PROXMIRE. Director MacEachin, the statement says the Soviets made especially large gains in the strategic area, and there were sweeping improvements in Soviet conventional forces. In addition, the Soviets produced an increasing amount of military hardware for delivery to other countries. All this occurred in the past decade, a period that coincides with a virtual freeze on procurement.

How did the Soviets manage to increase their capabilities and their exports, when procurement was barely rising at all?

Mr. MACEachin. Sir, there was not a freeze on procurement. Expenditures for procurement did not go up much, but there were certainly very high levels of procurement spending.

Senator PROXMIRE. If the growth rate didn't increase doesn't that constitute a freeze or close to a freeze, a freeze with an annual 1 percent increase.

Mr. MACEachin. Senator Proxmire, I am not sure how we define "freeze." I guess I interpret "freeze" to mean no more procurement, when, in fact, what happened was that a very high budgetary base—

Senator. PROXMIRE. Not no more procurement. I am sure you don't mean that. We would mean no more growth, not no more procurement.

Mr. MACEACHIN. There was slow growth, less than 1 percent average over the long haul. But again, the level of spending was enough to procure a very large amount.

Senator PROXMIRE. You can see my problem here with what seems to be contradictions. It said there were great improvements in high technology and in strategic weapons and conventional weapons and exports of weapons, and yet there was no increase in the overall—in other words, you're saying each of the ingredients increased, but the total did not.

How do you achieve that?

Mr. SWAIN. Senator, I would make two points on that. First, the defense exports are not included in the procurement totals that either agency reports. They are separate. Our procurement totals are only for the internal domestic Soviet forces.

Senator PROXMIRE. It is one of these problems where the output is increased, but the input remains the same.

Mr. SWAIN. But I think they are also talking about these greatly increased production amounts. We are comparing what happened over the past 10 years to what happened in the 10 years preceding that. In other words, from 1975 to 1985 a lot more equipment of the sort you mentioned was delivered to the Soviet forces than in the period 1965 to 1975.

Now from 1965 to 1975, procurement was rapidly growing, but in each of those years, it was lower than every year of procurement in the last 10 years.

Mr. MACEACHIN. I could answer the question most easily by making a comparison. I want to take the same approach Mr. Swain took. In the case of a rapid rate of growth, just to cite an example, from 5 to 20, during 10 years of growth at that rate, total outlays, total procurement, would be less than if outlays were sustained at 20 for the 10 years, and this is what happened.

MILITARY R&D

Senator PROXMIRE. CIA has attached little confidence to its R&D estimates.

Has anything changed your view about that portion of the estimates?

Mr. MACEACHIN. Yes, sir. We have, for the past 3 years, at least 3 years, been engaged in an effort to revise the method by which we make those R&D estimates.

Mr. Young has been overseeing that project for most of this time. While we still would put a very wide uncertainty range on our R&D estimates, we feel they're much more credible and a much better way of going about this over time. As we accumulate more data, our confidence should grow.

Senator PROXMIRE. Can you do that for the record for us?

Mr. MACEACHIN. Sure.

[The following information was subsequently supplied for the record:]

We have substantially greater confidence in our new estimates of Soviet spending for military RDT&E.

First, the new estimate is based on an entirely new building block approach [security deletion]. Second, the new method allows us to identify and calculate our uncertainties in each component of the new estimate, and compute a measure of uncer-

tainty for the total. The old method did not allow for any objective measure of uncertainty. Third, our new estimates have withstood several reasonableness checks, considering both the internal consistency of expenditures categories and trends in related economic and military data. We were unable to use many of these checks to evaluate the old estimates. [Security deletion.]

Central Intelligence Agency



Washington, D.C. 20505

16 May 1986

MEMORANDUM FOR: Richard Kaufman, General Counsel
Joint Economic Committee
U.S. Congress

FROM: J. Douglas Linton
Chief, Defense Management Branch, SOVA/DEIG/DID

SUBJECT: CIA Estimates of Military RDT&E Spending

In response to your request please find attached our estimates of Soviet spending for military RDT&E (research, development, testing, and evaluation). Attachment I compares US and Soviet military RDT&E activities as valued in constant 1984 dollars. Attachment II depicts the estimates in constant 1982 rubles, the new price base for all of CIA's estimates of Soviet defense spending. As you know, we have attempted to measure the uncertainty in our estimates of Soviet RDT&E spending. We have 90% confidence that the correct value falls within the high and low bounds specified in the attachments. Both attachments are unclassified.

A handwritten signature in dark ink, appearing to read "J. Douglas Linton".

J. Douglas Linton

Attachments:
As stated

SUBJECT: CIA Estimates of Military RDT&E Spending

Distribution:

Original to Addressee

1 - Congressional Liaison Staff, RM. 7B-02

1 - DEIG/DID

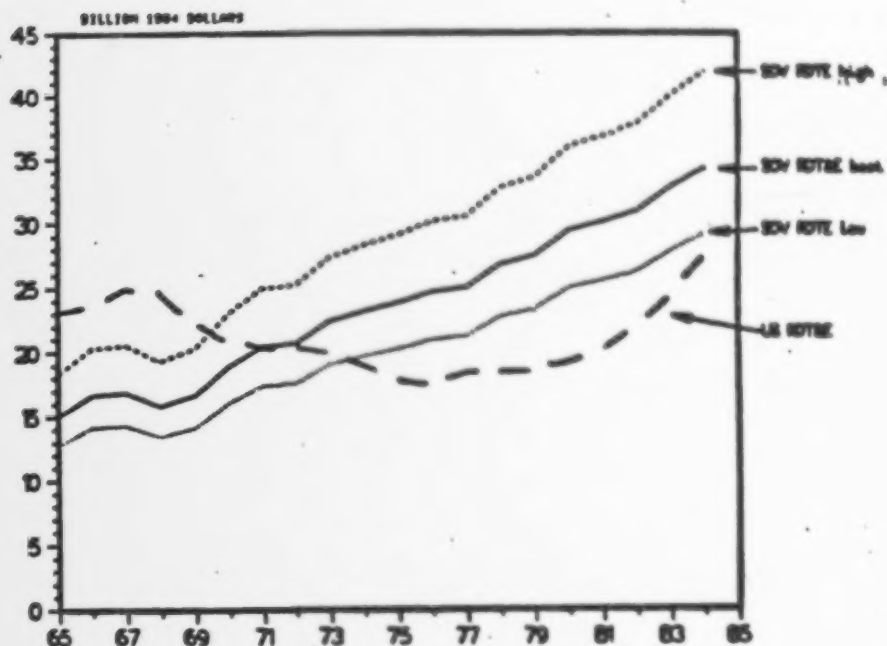
1 - DID/DM

1 - DEIG

SOVA/DID/DMB:DLinton/jc/27874

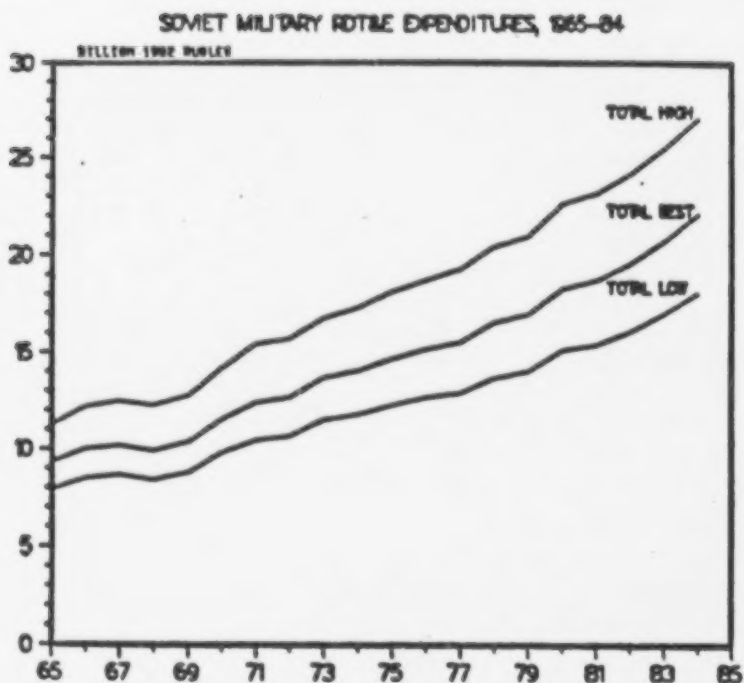
Attachment I

US and Estimated USSR Military RDT&E Expenditures



Note: The confidence interval (high and low bounds) averages plus 20 and minus 15 percent of our estimate for each year.

Attachment II



Note: The confidence interval (high and low bounds) averages plus 20 and minus 15 percent of our estimate for each year.

MILITARY SPENDING AND CAPABILITIES

Senator PROXMIRE. Admiral Schmitt, can you add any insight as to how the Soviets were able to achieve such a remarkable build up of capabilities through slow rates of overall growth, spending, and procurement?

Admiral SCHMITT. Yes, sir. It gets back to the base. The base is so large and it's been so large for so long. They've had the resources to continue.

Senator PROXMIRE. You see what my problem is. I can see why, with a high base, they can continue to build up, as they did in the past, but the increase in growth, it seems to me has to come from an increase somewhere along the line. You gentlemen seem to agree that there hasn't been that kind of an increase. It should be just the same kind of increments that we had before, not an increase.

Admiral SCHMITT. So I guess it is the definition of improvement. With a large base, you could have improvements, as you drop expenditures in the older equipment, and that would give you the resources to continue.

Senator PROXMIRE. One possibility that occurs to me is a big increase in productivity. If there's a big increase in productivity, we can understand why there would be an increase in the final result without any increase in procurement.

EXPLANATION OF SLOWDOWN

Let me ask you this, Mr. MacEachin. The intelligence community deserves great credit for the professional way in which it analyzes Soviet defense funding and makes the facts available, but I am wondering about the facts on the slowdown. It is remarkable that it occurred, and it has persisted for so long.

Do you have anything to add to why the slowdown has taken place, and do you know of any evidence of dissatisfaction within the civilian and military leadership?

Mr. MACEACHIN. Let me answer the first part first and say that we are persuaded that the slowdown is as much a matter of decision as a matter of a lot of extra restraints, as was first thought. In other words, they maintained their procurements at levels that they had more or less planned.

I do think that in some respects some systems have become available a little later than they thought because of deficiencies in the industrial technology base.

As to the second question, evidence of dissatisfaction. We have seen evidence of dissatisfaction within the military, dissatisfaction by military leaders, with the ability of the industrial base to meet its requirements.

MILITARY BURDEN

Senator PROXMIRE. Let me ask you, Admiral Schmitt, this question. Your two agencies agree that the share of GNP devoted to the military increased in current ruble terms from 12 to 14 percent in the early 1970's to 15 to 17 percent in the early 1980's. As I read the data, Soviet GNP increased at an annual rate of about 2.2 per-

cent from the period of 1976 to 1982. And Soviet military spending increased by 2 percent per year during this period.

How is it possible then that the military share increased during that period? Do you see the problem here arithmetically?

Mr. MACEACHIN. Yes.

Mr. WEINSTEIN. Those numbers you quoted are correct in terms of the CIA's measure of real growth. We've been applying measures in comparable terms.

I wonder, too, if I could go back to your last question?

Senator PROXMIRE. Let me make sure I understand your answer to this question. You see, the point is, if you had just an increase in GNP of 2.2, then an increase in the share of GNP on top of that, you should get a larger amount of military spending than your agencies report.

Mr. WEINSTEIN. The numbers that you quoted to me are CIA's numbers again. Those were given in real terms. Those are not the same measures that we use to generate our estimate of the share of GNP going to the military in current ruble terms.

Mr. SWAIN. I think, Senator, in 1970—

Senator PROXMIRE. Could you give us the figures for the record?

Mr. WEINSTEIN. Yes.

[The following information was subsequently supplied for the record:]

Defense burdens for any country should be ideally measured in current prices, which reflect the existing relative cost structure of the economy, to better gauge the actual cost of defense programs to the economy. Defense burdens are discrete measurements of the share of economic output going to defense in a particular year. In the case of the U.S.S.R., we estimate that in current prices total defense spending has grown at an average annual rate of about 7 percent since 1970. Growth of defense spending has outpaced Soviet economic growth, which we estimate grew, again in current prices, at an average annual rate of about 5 percent during this period. As a result, the share of Soviet GNP devoted to the military has increased from 12 to 14 percent in 1970 to 15 to 17 percent currently.

Mr. SWAIN. If you measured defense in 1970 rubles and compare that to, say, 1982, measuring defense in 1982 rubles, you would have an increase in the burden for two reasons. One is the relative price changes. The other is the real rubles. What both agencies see is that the price levels for defense goods were rising slightly faster than the price levels in the economy as a whole. So that while CIA figures in real terms don't show the defense burden increasing substantially over time, we would agree that when you measure that in current prices, because the price levels were rising, that you would see the burden increased.

Senator PROXMIRE. I think you've answered the question I was just about to ask Admiral Schmitt, but let me ask Admiral Schmitt to see if he agrees.

Is it correct that the inflation rate was higher in the Soviet defense sector than in the overall economy? And in calculating the defense share of GNP and current prices, it gives it an upward bias.

Is it correct that if the defense burden were calculated in constant prices, it would not increase? Is that right?

Mr. WEINSTEIN. We do not have a constant price series, and so the best we could do to respond to the last part of your question is to accept the CIA data.

We do agree with CIA that the prices in the defense sector have probably risen faster overall, because they've experienced greater cost increases, as the mix of weapons that they are producing becomes more sophisticated, more complex. It requires more costly materials and higher technology, both to design and produce the weapon itself, as well as the industrial technology.

Senator PROXMIRE. It seems to me that this is a very, very critical shortcoming. After all, if we don't know, if we don't have any notion of inflation, and the CIA used to have that inflation in the defense sector, we can't really tell what the real—which is what we want, of course—increase in defense spending is.

Mr. MacEachin, do you have any? You used to give that to us.

Mr. MACEACHIN. Senator Proxmire, when we are talking about the 1982 price base, we have made the effort to try and get behind the price change and get to resource costs. We say that the burden measured in current prices has increased slightly. We are talking about burden, in the sense that the prices and costs reflect the resources that are drawn into the sector.

Mr. SWAIN. In our reported series, Senator, which we do in constant rubles, we see essentially no change over the past 15 years in the burden of defense, but that's keeping our prices fixed in 1982 price levels, so that removes the effects of inflation. If one were to consider inflationary effects and looked at current price burdens changing from year to year, we would see an increase in the burden. That is why when we increased from our old 1970 price base to our new 1982 price base, we saw some change in relationships.

Mr. MACEACHIN. Mr. Chairman, I was going to say that trying to deal with the question, we are attempting to seek what this means, in terms of resources drawn from the Soviet economy to the military.

MILITARY EXPORTS

Senator PROXMIRE. Table 2 shows Soviet military deliveries have increased since 1974. Can you provide us with the figures in constant dollars?

Admiral SCHMITT. We will take that, sir, and put it in for the record.

Senator PROXMIRE. Fine.

[The table referred to follows:]

As shown on this table the figures for Soviet exports in constant 1984 dollars are 70.9 and 75.5 billion dollars for the periods 1974-79 and 1980-85, respectively.

ESTIMATED VALUE OF SOVIET MILITARY DELIVERIES

(Constant 1984 dollars)

Recipient	1974-79	1980-85
Total.....	70.9	75.5
6 Warsaw Pact countries.....	14.9	10.9
Syria.....	7.7	11.4
Iraq.....	10.3	9.1
Libya.....	9.2	6.4
Vietnam.....	3.6	5.4
India.....	3.4	5.3

ESTIMATED VALUE OF SOVIET MILITARY DELIVERIES—Continued

[Constant 1984 dollars]

Recipient	1974-79	1980-85
Algeria.....	2.7	4.0
Cuba.....	2.2	4.3
Ethiopia.....	2.6	2.9
Angola.....	1.2	3.1
60 others.....	13.1	12.7

Senator PROXMIRE. Unfortunately, the table for military deliveries shows only the 5-year and 10-year totals. There were far greater deliveries in the past 5 years and the 5 years before that.

What was the trend during 1985, and can you say whether deliveries went up or down, by how much, and can you provide for the record figures for each country, each of the past 10 years. I think we'd better do that for the record, too.

[The following information was subsequently supplied for the record:]

In 1985, Soviet military deliveries totaled almost \$9 billion. This was about a 20 percent decline from the value for 1984. The drop was caused mostly by financial constraints in the global arms market and the completion of military modernization programs among some of Moscow's clients. This table shows the values for each recipient during the past 10 years.

VALUE OF MILITARY ASSISTANCE DELIVERIES, 1974-85, SUPPLIED BY THE U.S.S.R.¹

(Million current U.S. dollars)

[illegible]

VALUE OF MILITARY ASSISTANCE DELIVERIES, 1974-85, SUPPLIED BY THE U.S.S.R.¹—Continued

[Million current U.S. dollars]

Recipient	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Hungary												
India												
Iran												
Iraq												
Jordan												
Kenya												
North Korea												
Kuwait												
Laos												
Lebanon												
Libya												
Madagascar												
Mongolia												
Mali												
Morocco												
Mozambique												
Nigeria												
Nepal												
Nicaragua												
Peru												
Pakistan												
Poland												
Guinea Bissau												
Romania												
Seychelles												
Sierra Leone												
Somalia												
Sudan												
Syria												
Sao Tome												
Turkey												
Tanzania												
Uganda												
Vietnam												
Yemen (Sana)												
Yugoslavia												
Yemen (Aden)												
Zambia												
Zimbabwe												
Grand total												

¹ Figures deleted for security reasons.

POSSIBLE REDUCTIONS IN AID TO COMMUNIST COUNTRIES

Senator PROXMIRE. Secretary Gorbachev seems to be indicating a reduction in aid and subsidies to the Communist empire. Reactions of leaders of Angola and Cuba suggest that he's cutting the Soviet burden.

Mr. MacEachin, is this likely and what evidence is there that the Soviets may cut military aid to its allies?

Mr. MACEACHIN. Sir, the only thing we have on that at this moment is the way the party program is working. Whether that means cutbacks in military aid in those areas, where they only have a very small client relationship, of that I am not certain.

Senator PROXMIRE. Do you have any economic data to support this?

Mr. WHITEHOUSE. No, sir, we don't have direct data which says how much they are cutting back. We suspect they may try to cut back at the margin in some countries. We don't think they will arbitrarily cut them off, especially countries such as Cuba, which depend very heavily on the Soviets. Even if they did, it would not have that great an impact on the Soviet domestic economy, because the total amount of aid to its clients outside of Eastern Europe is very small, in comparison with the total GNP.

Mr. MACEACHIN. In sum, we have yet to see how that programmatic statement that was listed will be carried out.

Senator PROXMIRE. I am going to have to call a recess, because there is a rollcall on the floor of the Senate right now. I haven't missed a vote in 20 years; I don't want to break my record.

So I'll be back as quickly as I can.

[A brief recess was taken.]

SOVIET TECHNOLOGICAL LAG

Senator PROXMIRE. Admiral Schmitt, the statement says that Gorbachev realized that without a major renovation of the country's industrial base, the Soviet Union would continue to trail technologically in some areas beside the military, and that Marshal Ogarkov and others have said that without major improvements in the economy, military capabilities would continue to lag behind the West, technically, in many areas.

Can you be more specific about where the Soviets lag technically?

I made the point earlier, we've been informed that from the standpoint of technology, the Under Secretary for Research has told us that they lag in 14 of the 20 most important areas, and we are tied in the other 6.

Is there anything more you can add to that?

Admiral SCHMITT. Not at this time, sir. We will take that for the record and amplify it for you.

[The following information was subsequently supplied for the record:]

The Under Secretary for Research and Engineering comparison of the status of basic technologies (enclosed) indicates the Soviet Union currently trails the United States in 14 of the 20 advanced technologies assessed. Many of these lags can be attributed to significant Soviet shortcomings in the following underlying technologies:

In computer technologies, the Soviets lag the United States by 5 to 15 years in various areas and appear to be falling further behind. Their problems appear to be significant in general purpose and super computers [security deletion]. Soviet capabilities in computer software are poor and this continues to impact a variety of military applications [security deletion].

In production technologies for microelectronics, the Soviets have been unable to achieve high-quality mass production of both electronics-grade silicon and the microelectronics devices themselves sufficient to their needs.

The Soviets have had a longstanding problem in producing high-quality precision test equipment and instrumentation for their research, development, and production programs. This situation likely will remain a persistent problem as the Soviets continue to incorporate ever more advanced technology into their weapon systems.

Table II-3. Relative U.S./USSR Standing in the Twenty Most Important Basic Technology Areas*

Basic Technologies	U.S. Superior	U.S./USSR Equal	USSR Superior
1. Aerodynamics/Fluid Dynamics		X	
2. Computers and Software	←X		
3. Conventional Warheads (Including all Chemical Explosives)		X	
4. Directed Energy (Laser)		X	
5. Electro-Optical Sensor (Including Infrared)	X		
6. Guidance and Navigation	X		
7. Life Sciences (Human Factors/Biotechnology)	X		
8. Materials (Lightweight, High Strength, High Temperature)	X→		
9. Micro-Electronic Materials and Integrated Circuit Manufacturing	X		
10. Nuclear Warheads		X	
11. Optics		X	
12. Power Sources (Mobile) (Includes Energy Storage)		X	
13. Production/Manufacturing (Includes Automated Control)	X		
14. Propulsion (Aerospace and Ground Vehicles)	X→		
15. Radar Sensor	X→		
16. Robotics and Machine Intelligence	X		
17. Signal Processing	X		
18. Signature Reduction	X		
19. Submarine Detection	X→		
20. Telecommunications (Includes Fiber Optics)	X		

- * 1. The list is limited to 20 technologies, which were selected with the objective of providing a valid base for comparing overall U.S. and USSR basic technology. The list is in alphabetical order. These technologies are "on the shelf" and available for application. (The technologies are not intended to compare technology levels in currently deployed military systems.)
2. The technologies selected have the potential for significantly changing the military capability in the next 10 to 20 years. The technologies are not static; they are improving or have the potential for significant improvements; new technologies may appear on future lists.
3. The arrows denote that the relative technology level is changing significantly in the direction indicated.
4. Relative comparisons of technology levels shown depict overall average standing only; countries may be superior, equal or inferior in subcategories of a given technology.
5. These average assessments can incorporate a significant variance when the individual components of a technology are considered.

Senator PROXMIRE. Admiral Schmitt, I would like to ask you this too. Do you conclude that the U.S. lead in military technology has been widening in recent years or has been narrowing?

Admiral SCHMITT. We can probably answer that question in two ways. You can have technology in the field, that which is deployed. In that case, I don't think there's been any widening. I think the Soviets have closed, and in many cases have surpassed us.

When you are talking pure technology of weapons systems, I think we still have a sizable advantage.

Senator PROXMIRE. There is one area that is particularly important with respect to the strategic defense initiative, where they seem to be really badly lagging and losing ground. That's computers.

Is that correct? I have read estimates that they may be 30 years behind us in computers.

Admiral SCHMITT. I think in computer technology itself, they are not quite that far behind. I think in the software side of computers is where they're lagging the most.

Senator PROXMIRE. Of course, that software is necessary in SDI too; isn't it?

Admiral SCHMITT. Yes, sir; very much so.

MILITARY BURDEN AND ECONOMIC PROSPECTS

Senator PROXMIRE. Mr. MacEachin, for many years the CIA has been saying that the heavy military burden is a drain on the Soviet economy, hampering its performance and growth potential. You have indicated the military leadership is going along with efforts at modernization, because a strengthened economy will provide the basis for an expanded defense program.

Should the leadership be concerned that the hoped for improvement in the economy will not occur, so long as the military burden is so high? Should they be prepared for not just a slowdown in growth, but an actual cutback in defense before economic prospects get much better?

Mr. MACEachin. Yes; let me answer the first part this way. The civilian and military leadership are agreed now. As I mentioned before, there is a confluence of interests, both in the short-term and for the long-term benefits of the short-term effort. Whether this agreement will be sustained a few years from now is a problem and a question which I really can't address, and I don't think Mr. Gorbachev himself knows how he can resolve that at that time.

Doug? You have a thought along that line.

Mr. WHITEHOUSE. Certainly the military has received the lion's share of the best resources throughout history. Undoubtedly adopting some of the methods that the military has used, particularly their quality control techniques and raising the priority of some civilian sectors, will help in Gorbachev's modernization effort. But clearly everything cannot be a priority simultaneously. Therefore, should Mr. Gorbachev try to make everything a priority, nothing would be a priority, and the modernization program would probably fizzle.

We do expect some gains to be made. Gorbachev expects some gains to be made, but neither we nor Gorbachev feel that those

gains are going to come quickly or easily. We don't think he is in a position to withdraw resources from the military sector at this point.

He is in a position to maintain the flow of rubles going to the military sector at about the same level without a lot of disagreement for the time being. Therefore, the increment to the civilian economy from military growth foregone, so to speak, will be of some help, but only in selected sectors. It won't be a big chunk across the board. What he is counting on, it seems to me, Senator Proxmire, is the long-term synergism between those things that the economy is well prepared to do now, that is focus on human factors, discipline, temperance substitution of capital for labor in relatively low-technology areas, and at the same time support his modernization program through more investment in high technology.

We think he expects to merge these two facets of his program in the 1990's in a way that will put the economy on an accelerated growth path and result in the high growth rates you saw in the early 1970's or even later 1960's.

Whether this is successful or not will depend on how much success he has in sustaining his human factors approach, and in modernizing the industrial base.

Senator PROXMIRE. I want to ask Mr. Kaufman to follow up on that.

Mr. KAUFMAN. Mr. Whitehouse, what the question is getting at is the fact that for many years, as far back as the 1960's, the CIA has been saying that the heavy military burden impedes Soviet economic prospects and has been a major factor in the long-term growth slowdown in the Soviet economy.

Now it does not appear that you are projecting any reduction in the military burden for the foreseeable future.

How then can it be possible for Gorbachev to craft a strategy that will get the economy back on the path of sustained growth with the same heavy military burden that you have concluded has been a major reason for the slowdown in the first place?

Mr. WHITEHOUSE. Although Gorbachev probably expects he can do this, it is our judgment that he cannot. Part of Gorbachev's game plan is to rely more heavily on Eastern Europe for imports of machinery and equipment to supplement the U.S.S.R.'s domestic machine builders. But it is unlikely that the East European countries will be able to supply enough high quality machinery to meet all the needs of the Soviet modernization program that cannot be met from the U.S.S.R.'s domestic production. Thus, Gorbachev would probably like to increase imports of Western technology and equipment, but he may find this difficult to impossible in the face of sharply dwindling hard currency earnings brought on by the abrupt fall in world oil prices. On balance, even if he successfully increases economic growth via human factors in the short run, say for 1 year or 2, it is unlikely that the modernization program will have made enough progress to permit a resumption of rapid rates of growth in defense spending. Thus, by the late 1980's the defense burden, as measured by the defense share of GNP, would have to fall or Gorbachev would have to moderate his ambitious modernization program and settle for slower growth of the economy.

Mr. MACEachin. Could I make a comment, Mr. Chairman? This is a fundamental question for the rest of this decade for the Soviet General Secretary's program. It will affect his political power and ultimately will affect the Soviet Union's superpower position. At the risk of oversimplification, I would describe the present situation as one in which the question for the next few years is, how much of the capacity of the machine building sector, machine building and metal working, will be used to build new machines, as opposed to how much of that capacity will produce weapons?

The machinery and equipment to turn out weapons is installed in plants that are currently producing things which are in series production or in-flight testing and close to series production.

This is why we said, for the next few years, while we see some competition for raw materials, basic materials, and labor, we do not believe the leadership will let such resources be taken away from military production plants that would force part of this plant and equipment to stand idle. For even a leader like Gorbachev, to deal with an entrenched military establishment on that issue would be difficult. We don't think, other than at the margin, that's where the impact is going to show.

I characterized as a potential decision threshold, a potential clash of objectives, as the time when metal has to be bent for equipment to go into a new production line. That is why we think that Gorbachev is gambling that gains in productivity in the immediate future will help him deal with that problem, which is further down the line.

As I mentioned, this situation is not without some political risk, without high-level political risk.

SHORTAGES OF CRITICAL SKILLS

Senator PROXMIRE. Admiral Schmitt, the statement discusses existing shortages in the Soviet Union in critical skills of systems analysts, computer programmers, some types of engineers and skilled machinists. Yet for many years, I have been hearing about the superiority of Soviet industrial training programs and the fact that they graduated many more engineers and technicians each year than we do. Have those who have made such claims been wrong? If they were right, how can there be shortages of this kind in an economy which has been so sluggish?

Mr. WEINSTEIN. I think over the years, they have generally graduated large numbers of engineer-scientists. I cannot address whether they are on average, equivalent of U.S. scientists and engineers. So I think there are two parts to that question—quality and quantity. Quantity, yes.

Senator PROXMIRE. As I say, I have seen a lot about the superiority of the Soviet industrial training program. Obviously, unless you have some kind of an ethnic theory of superiority, they are no smarter or less intelligent than we are. Therefore, if their industrial training is superior, why haven't they been turning out better technicians, and so forth?

Mr. WEINSTEIN. I cannot respond to your question about their training programs.

Senator PROXMIRE. For the record, you can perhaps give me the answer.

[The following information was subsequently supplied for the record:]

Soviet efforts to educate and employ scientific and technical (S&T) personnel are very uneven. They are marked by an emphasis on quantitative factors and affected by certain systemic inefficiencies. By their own count, the Soviets graduate approximately 500,000 engineers and natural scientists per year—more than twice that of the United States—for a total of over 8 million since 1960. These figures give an inflated impression of their actual scientific and engineering manpower base because they include gross numbers of S&T graduates whether they are employed in an S&T position or not. The Soviets include in their engineering fields such disciplines as agriculture and meteorology, and other topics which would not be considered (S&T) in the United States. The Soviets also include many graduates who receive their engineering degrees through correspondence courses which are inferior to full-time programs. Furthermore, the productivity of this huge S&T personnel pool is tempered by inefficient planning and utilization, overages in some disciplines and shortages in others, geographic shortages and surpluses, and the limited flexibility of many of their graduates. Qualitatively, the best of their S&T educational programs and schools rank with the best in the world; however, the relative quality diminishes rapidly after consideration of a small number of elite institutes located in the major urban centers. U.S. education specialists consider Soviet S&T curricula excessively specialized, leading to inflexibility and a focus on existing technology. They find that Soviet graduate-level experimental research suffers from a lack of equipment and limited access to data. Theoretical research is often divorced from meaningful scientific problems. Although these systemic problems plague the entire Soviet S&T educational system, their effects on the military-industrial effort are moderated by the top priority it enjoys. The defense industries receive all the S&T graduates they need and choose from the "cream of the crop."

STRATEGIC DEFENSE INITIATIVE

Senator PROXMIRE. Director MacEachin, you mentioned SDI in your remarks. Does the United States know how much it costs the Soviets to build the ABM that is underway, how much it would cost them to build an SDI?

Mr. MACEachIN. Sir, we have estimates of the cost of the ABM system. I'll take that one for the record. We also have cost estimates on space weapons, although I don't have those figures available. But we will take those for the record.

[The following information was subsequently supplied for the record:]

We have not yet developed comprehensive estimates of what a Soviet response to the U.S. Strategic Defense Initiative might cost and what the impact might be on the Soviet economy. Until the U.S. hardware architecture is clearly defined and the extent of changes in U.S. force posture are better known, it will be difficult to estimate Soviet potential responses and costs.

Since the U.S. announced its SDI program in 1983, the Soviets have probably taken some steps to refocus their technical efforts, reallocate resources in order to put greater emphasis on specific technologies the U.S. is pursuing, and developing technology for SDI-related countermeasures. If the Soviets pursue a program of either countering or emulating SDI, funding would surely increase. Moving advanced technologies through research and development and into testing, production, and deployment would require substantial increase in expenditures. Because current and projected Soviet strategic programs already require large resource commitments, the addition of new programs over the next several years in direct response to SDI would almost certainly conflict with planned military programs and with General Secretary Gorbachev's industrial modernization program.

Mr. MACEachIN. As to estimates of what it would cost the Soviets to pursue an SDI program like the United States, I don't think we have that.

CHINA

Senator PROXMIRE. I have a lot more questions on the SDI, but time is getting along. We're in the afternoon already, and we haven't even started the Chinese area. We want to get into that. That is very important too.

Could we have a summary of your statements on China and then go into the questions.

The other alternative that is always a possibility, is that I ask questions, and then when I finish, you decide to go ahead on whatever hasn't been covered in the questions.

Mr. MAC EACHIN. Sir, it's for your convenience. Whichever you choose. Perhaps you'd like to start your questions now, and that would at least assure that we deal with those things in which you are most interested.

1985 ECONOMIC PERFORMANCE

Senator PROXMIRE. Director MacEachin, economic performance was quite mixed in 1985 in China. The reduced grain production, a surge in inflation and a worsened balance of trade.

What are the reasons for these disappointments and what are the prospects for a repeat performance this year?

Mr. MAC EACHIN. Mr. Chairman, I am going to ask Lee Zinser, who is an analyst of the Chinese economy in the Domestic Policy Branch of the China Division, to handle these.

Senator PROXMIRE. Very good, Mr. Zinser, go ahead.

Mr. ZINSER. The decrease in grain production was caused by two developments last year. First, China experienced flooding in the northeast, which we believe probably accounted for about 40 percent of the decrease.

Second, early in 1985, China began to institute a further broadening of the agricultural reforms. Beijing eliminated the quota system, replacing it with a contract system. Under the new system, farmers contracted with the government to produce a specified amount of grain. At the same time the contract system was implemented, Beijing also eliminated a previous policy whereby farmers were paid a premium for over quota production.

Now, farmers are asked simply to provide the contracted amount and then any excess over the contracted amount is to be sold by farmers on the free market. Apparently, this further commercialization of the agricultural sector caused a lot of confusion at the local level. Cadres who used to spend a lot of time making sure that farmers were planting the grain, apparently didn't think that they had to do that under the new system. At the same time, Beijing lowered the relative attractiveness of growing grain, they also encouraged the development of rural industries. Salaries that were possible in rural industries were relatively high compared to returns from grain production. This pulled a lot of peasants off the land. Also, a lot of farmers switched to producing vegetables and other cash crops after Beijing removed controls from the retail prices.

[The following information was subsequently submitted for the record:]

The surge in prices and the large trade deficit were caused by relaxed central controls and sharp increases in investment spending and personal income. Last year, Beijing implemented a combination of Western-style macroeconomic adjustments and administrative measures designed to ease inflationary pressures and reduce the trade deficit.

UNITED STATES-CHINESE TRADE

Senator PROXMIRE. I indicated there was a drop in production in China of grain in 1985, but they have had a big increase over the decade, and they are a very important exporter now. So instead of a market for United States grain, China is actually competing with the United States. What has that done to United States-Chinese trade, and what are the trade prospects for the next 2 years?

Mr. ZINSER. According to the United States Government statistics, the United States sold about \$97 million of grain to China last year which accounted for roughly 2 percent of total United States exports to China. That was down dramatically from 3 or 4 years ago. This year, even though there was a fall off in grain production, we don't expect China to significantly increase imports of wheat from the United States.

China will probably try to export several million metric tons of corn to the Soviet Union, South Korea, and Japan in 1986. China will also try to increase exports of cotton. Chinese sales of agricultural products in East Asia will have a small, but noticeable impact on U.S. sales to the region during the next 2 years. The agricultural portion of United States-Chinese trade is relatively low, and we don't expect that to change very much in the near future.

CHINESE MILITARY SPENDING

Senator PROXMIRE. Mr. MacEachin, in your discussion of Chinese defense, the military, is pretty brief. You are talking about announced defense expenditures. Are these figures as phony as the Soviet Union's announced figures? If so, why cite them, and do you have your estimates of defense spending?

Mr. MACEACHIN. Sir, as one who spends time working on Soviet defense expenditures, it is hard to believe that the Chinese would be as phony as the Soviets. I don't think they include everything. They probably understate spending by as much as half, as opposed to what we are estimating. There is about an 80-percent understatement on the Soviet side, by comparison.

Senator PROXMIRE. They are phony, but they're not quite as phony.

Mr. MACEACHIN. They're not as phony.

Senator PROXMIRE. Can you give us for the record, perhaps, your estimate of what actual defense spending is, as compared with their announced figures?

As we all know, China has been friendly to us in the last few years, and that has been a great advantage to us, but we don't know how long that is going to continue. It could change overnight. We hope and pray it won't, but we should be prepared for that.

Mr. MACEACHIN. We also didn't answer part of your other question. We use them, because we think that while the amounts are wrong, the directions indicated probably reflect the actual trend.

What is the direction?

Mr. ZINSER. We just have a relatively crude approximation for you. We analyze Chinese defense expenditures, but not in as much detail as my colleagues who analyze the Soviet Union's, and we believe that the public statistics leave out important items, such as funds for research and development.

China announced that their defense spending was about \$6 billion in 1986. We tend to believe that the actual figure was at least twice as high as that or \$12 billion. However, we believe the trend in the public statistics accurately reflects the diminished priority given the defense sector under the reform program.

NUCLEAR WEAPONS

Senator PROXMIRE. One of the questions that concerns me a great deal, and I am sure concerns many others, is the nuclear weapons development in China. We know China is a nuclear power. We've made an agreement to sell them peaceful nuclear technology, which can be, of course, in the process, they can develop processed material, which they can use militarily.

What do you find about the Chinese nuclear capability? Are they building it up? As I pointed out on the floor a few times, a lot of people don't realize, both France and the United Kingdom are on their way to a 1,000 warhead status each, a huge build up.

Is there any parallel increase by the Chinese?

Mr. MACEACHIN. If Mr. Zinser doesn't have the answer to that, sir, we'll take that for the record.

Senator PROXMIRE. See what you can do.

[The information referred to follows:]

We expect the size of China's nuclear arsenal to double in the next ten years. China has a few full-range ICBMs, and additional small number of limited-range ICBMs which can strike targets as far away as the European U.S.S.R., and about 100 shorter range nuclear missiles which can strike targets in Asia.

DEFENSE POLICY

Senator PROXMIRE. Are there signs of a debate or dissatisfaction with defense policy in China?

Mr. ZINSER. No overt signs. Deng Xiaoping has been very effective in selling his program across the board. Although there may be some military officers who would like to have higher spending, his approach is:

Right now we don't have the economic base to support higher defense spending. What you need to do is give me time to implement my economic reforms and then will experience rapid economic growth. Once we have that, then we will provide the budget assistance for you that you need.

Generally, the military leadership has gone along with Deng. They've been willing to allow the time to do that. They are purchasing selective systems, however, but in general, we believe that they are going to defer purchasing to the future.

COMPLAINTS OVER RETAIL FOOD PRICES

Senator PROXMIRE. The statement mentions widespread complaints over retail food prices. How far do the complaints go? Were

there protests or any other disturbances resulting? Strikes, parades, or whatever?

Mr. ZINSER. Yes, sir; there were some disturbances, a series of demonstrations by university students in the fall, not specifically protesting food prices, but that was one of their complaints. The problem arose because, in the spring of last year, Beijing decontrolled retail food prices for nonstaple goods. Those prices rose fairly sharply. To help cover the increased cost of food, Beijing issued a subsidy for urban residents, and urban workers received relatively sharp increases in their wages. The students, however, weren't able to protect their standard of living through higher wages, so they've been hurt relative to other people, and that was one of the reasons for the protests. That was an indication of dissatisfaction. We also know that there has been a lot of grumbling, a lot of dissatisfaction among urban residents about the higher food prices.

CORRUPTION

Senator PROXMIRE. How about the problem of corruption in China and the magnitude of corruption?

Mr. ZINSER. Well, it is fairly serious. Beijing seems to be in the process of cracking down on corruption. There have been indications that they will start executing people for economic crimes. They have publicized a number of egregious examples of economic corruption, published them widely throughout the country.

We believe economic corruption is a serious threat to the reform program. We believe the reformers are on top of the issue and are leading a crackdown on corruption that will last through this year.

ADMINISTRATIVE EXPENDITURES

Senator PROXMIRE. You say one measure taken to get the economy under control was the 10-percent cut in administrative expenditures.

Can you say what this means as a practical matter? Can you give us any details about it?

Mr. ZINSER. That was the announced goal. We believe they actually had difficulty in implementing it.

Senator PROXMIRE. You don't think there was anything like 10 percent? Was there a reduction of any degree?

Mr. ZINSER. My best guess is that there was no reduction in administrative expenditures.

Senator PROXMIRE. That one seems to me to be one of the things they could put into effect more readily than many other changes. After all, they just discharged 10 percent of their administrators.

Mr. ZINSER. The problem centers at the provincial and local levels. Beijing had problems, for instance, with administrators at those levels sponsoring trade shows, banquets, and travel, with the ostensible purpose of developing contacts and improving the economy in their regions. Beijing has had some difficulty getting the central directives implemented by governments at lower levels.

PAUSE IN ECONOMIC REFORMS

Senator PROXMIRE. Would you say that inflation and the reaction to price increases has become a major stumbling block to further economic reform, and that in 1986, there will be a pause in the reform movement?

Mr. ZINSER. I think the key components of the reform program such as further price reforms, will be on hold during 1986.

CHINESE-SOVIET RELATIONS

Senator PROXMIRE. Can you discuss the recent developments in Chinese-Soviet relations and how you describe the present relationship and its prospects?

Mr. MACEachin. I would start from the Soviet side, sir. The new General Secretary and the new Foreign Minister both have gone on record as criticizing their predecessors for allowing the present situation to develop. They've made some general statements. There have been some higher level exchanges, but insofar as we are aware, the relationship remains state to state, not party to party.

There is no indication the party-to-party relationship will reopen. This is the most significant event. As far as I am aware, the Chinese are still insisting, with the varying degrees of emphasis, that the three obstacles must be dealt with before there can be any major move forward. Nonetheless, there has been an increase, I think, in the value of the trade agreement, which was recently concluded, and we have seen the Soviets making a greater effort with China.

Senator PROXMIRE. Did you say there has been improvement in the value of the trade?

Mr. MACEachin. I think they raised it because of the new trade agreement.

Mr. ZINSER. Because of the recent trade agreement, Sino-Soviet trade increased about 50 percent last year.

Senator PROXMIRE. Is any of the trade in military equipment?

Mr. MACEachin. No, sir; and the overall trade increase is from a very low base again.

Senator PROXMIRE. What is the level of trade? What portion of Chinese trade is with the Soviet Union? Can you guess?

Mr. YOUNG. It is about 3 percent.

Senator PROXMIRE. Three percent?

Mr. YOUNG. Three percent. That is a dramatic change from what it was.

Mr. MACEachin. Oh, yes, sir. So what we are saying is, these are the first signs, although the levels are still very low.

TRANSFER OF MILITARY TECHNOLOGY TO CHINA

Senator PROXMIRE. Let me ask you, are you concerned that the transfer to China of Western military and advanced military technology could backfire against United States interests, should there be another political upheaval in China?

Mr. MACEachin. I will try that one. As you posed the question, Senator, I must be concerned, but I will have to defer to my colleagues who are more expert on Chinese internal politics.

My own perception, at least personal perception is, that the strategic triangle, if one describes it that way between the United States, the Soviets, and China, has worked to the advantage of the Chinese and to the United States.

Senator PROXMIRE. Rather than the United States?

Mr. MACEachin. And the United States.

Senator PROXMIRE. Both countries.

Mr. MACEachin. That is right, and if there were a political upheaval within China, I am not certain that whatever new political leadership came aboard would want to sacrifice what, I think, is generally perceived in China to have been the benefits of this relationship.

Now if there were some who were more ideologically oriented, I would have to defer to Lee.

Senator PROXMIRE. We used to think that about Iran, too.

Mr. MACEachin. I think we had a different relationship with Iran.

Senator PROXMIRE. Well, they're all different.

My only point is that it's a very tricky, unpredictable area.

Mr. MACEachin. Yes, sir. But the fundamental difference is that the United States was perceived in Iran, at least, as supporting a person who was repressive of the populace. I think the United States is not perceived in that role in China.

The Chinese have done a very nice job, I think, of playing, for their own benefit, with a little nod toward the Soviets and then toward the United States.

Senator PROXMIRE. Mr. Zinser.

Mr. ZINSEr. The only thing I will add to that is, that as we look at the leaders likely to be moving up during the next 5 or 10 years, we believe that they will still perceive the Soviet Union as the key strategic threat to China.

Senator PROXMIRE. Admiral Schmitt, I understand your position on this: You wanted the Chinese and Russians discussed separately. Nevertheless, this last question, of course, deals with the Soviet Union. So let me ask you that question.

Are you concerned with the transfer to China of United States and Western military and advanced civilian technology, that it could backfire against our interests should there be another political upheaval?

Admiral SCHMITT. I would say yes, in the idealistic way of answering that question, but the probability of it I don't see happening. So I think the term is tempered.

Senator PROXMIRE. All right.

Would you like to summarize your statement then?

Any questions we haven't covered?

TRANSITION TO MORE MARKET-ORIENTED SYSTEM

Mr. MACEachin. Sir, I'll just make a couple of short summary remarks. Then we can insert the full text in the record.

I wanted to touch on a couple points having to do with the longer term prospects in the transition from a planned economy to this more market-oriented system. The Chinese leadership has had to relinquish a certain element of central control, and, I think, they

have found that over time, the enterprises and organizations have not been as responsive to economic levers as they had expected. Consequently, to improve its ability to maintain economic stability while implementing dramatic reforms, Beijing is strengthening those central mechanisms which they are still using. The system they employ is one in which they have granted more autonomy, but those central planning mechanisms that remain have to be strengthened. They have to improve coordination between those two levels.

So that we expect, for the future, that China will have periods of some stability, some inflation and rapid growth and that the policy-making process, the economic policymaking process, is going to remain highly susceptible to political interference.

In our judgment, the economic reforms of China last year have some important implications for the United States, first, as you've already mentioned, because of China's large trade deficit. Beijing may push hard for increased exports, exporting, for example, greater amounts of oil, light manufacturing, and textiles to the United States.

If this is the case, the situation in China will have a direct policy bearing on the United States. China may slow or postpone some major projects inside its own industrial and energy infrastructure for which they have been soliciting foreign funds and technology.

Finally, we may see an increase in China's borrowing in the world financial market.

I think I would like to leave the summary at these points, because they are the critical points that we always look for when we examine any foreign country. In effect, how do developments in a country bear on its policy relationship toward the United States?

And I'll keep the rest of the statement for the record.

Senator PROXMIRE. That is very helpful. Let me just ask one question on this.

You indicated that the economic growth in China would be susceptible to political interference.

Mr. MACEachin. The economic policy formulation mechanism is still going to be susceptible to interference.

Senator PROXMIRE. And I anticipate by that you mean that the growth which has been sensational for a couple of years might slow down, because of political insistence on following some kind of doctrine, Marxist doctrine Leninist doctrine, whatever, in which they would be inhibited from the kind of decentralization that's been their main basis, as I understand it, for their progress.

Mr. MACEachin. I think I would like Lee Zinser to amplify this. My impression, frankly, from some personal discussions is that there are many in China who are very excited about this economic policy but they are also nervous. They don't want to move so fast as to cause them to lose the gains they've achieved.

So I think that even those who are fully supportive of the process are going from time to time to act politically or act with political motives, so as not to make more difficult the long-range goals.

CENTRAL CONTROLS

Senator PROXMIRE. Let me follow up on that. I think that some people have the notion that China has become a free-enterprise country, practically, that they have made big moves in that direction. I get that impression that that is a very naive overstatement, that the actual free enterprise operation is very, very small. It is overwhelmingly controlled by the Central Government, by the state. There is decentralization, which has been the principal factor in their economic progress rather than private ownership of the means of production.

Is that right?

Mr. ZINSER. That is correct.

The figures they have released show that about 3 percent of the urban labor force is actually engaged in what we would call free enterprise type activities.

Senator PROXMIRE. You say 3 percent of the urban labor force. What proportion of the Chinese population is urban?

Mr. ZINSER. About 20 percent urban. So overall, if we are talking in terms of the total labor force, the free market is extremely small.

Senator PROXMIRE. The rural production is mostly in the area of food, I take it.

Mr. ZINSER. That is correct.

Senator PROXMIRE. And that is also a mixed situation; is it not? They are beginning to sell more on the open market?

Mr. ZINSER. That is correct. The commune system of the past has been dismantled now. Most farming is carried on by individual households, extended households. There is some cooperation between households, which they call collective farming, but it is basically on the household or extended household level.

Senator PROXMIRE. That household level, if it is the kind of household that we have in this country can be fantastically productive. The farmer doesn't own his land.

Mr. ZINSER. No, he can lease it now for up to 15 years. Usually, the leases would be extended, though. So he has essential control, but not ownership of his land.

Senator PROXMIRE. Does he own his equipment?

Mr. ZINSER. He typically would own the small tractors or small implements. Larger implements he would rent from a collective or a larger state organization.

GRAIN PRODUCTION

Senator PROXMIRE. The grain production that has been sensation-ally increasing until 1985, when it went into probably temporary abatement. That is largely in the collective national sector, rather than private?

Mr. ZINSER. Well, I would place the grain in the individual household sector. The growth in grain production is due to a large extent to the fact that they allow farmers to work the land, allow them to benefit from the bumper harvest that they put on the land, even though the land is not theirs. I might characterize that as household farming rather than state farming.

Senator PROXMIRE. Well, you know, I don't want to detain you much longer, but you know by far the most energizing force in our

whole economy, in my view, is the family farm. Our farmers work in Wisconsin, according to the University of Wisconsin, 10 to 12 hours a day, 7 days a week, 52 weeks a year. They have a big investment, and whether they make it or don't make it depends entirely on their own efforts.

So they are fantastically productive.

Last year, we had a drop in productivity in this country, but an increase in agricultural productivity of 11 percent.

The extent to which they can free their agriculture, it seems to me, is going to be the extent to which they are going to grow. It seems to me that on the basis of their political dogma, it is going to be hard to do.

Mr. ZINSER. Well, they've already gone a long way, and we believe that part of the productivity gain with a bumper harvest has simply been because they have broken up the communes, and they have said, "OK, you can use this plot of land how you want to." Up until last year, they have had to meet a quota, but then anything over that quota, they could sell to the state at a higher price or sell on the free markets themselves. We think this has been a very powerful incentive, the right to use their land as they want to.

Of course, they've also raised procurement prices for grain, and that also was an incentive to increase production.

Senator PROXMIRE. Gentlemen, thank you very, very much.

I wonder if we can agree to sanitize the record by the end of April.

Is that possible?

Mr. MACEACHIN. Sure.

Senator PROXMIRE. You gentleman are both nodding, and I take it, you, therefore, both agree to that.

Mr. MACEACHIN. Yes, sir.

Admiral SCHMITT. Fine.

Senator PROXMIRE. So we can realize the full transcript as soon as possible.

Meanwhile, you've given us the sanitized version that we can work on. I am talking about by the end of April with the questions and answers, if that is fine.

Admiral SCHMITT. That can be done.

Mr. MACEACHIN. Yes, sir. The paper which we gave you, you can release.

[The paper referred to follows:]

China: Economic Performance in 1985

17 March 1986

A paper prepared by the Central Intelligence Agency for
submission to the Subcommittee on International
Trade, Finance, and Security Economics of the
Joint Economic Committee, Congress of the United States

Note:

This report will be released to the public following the joint appearance of the Director of the Office of Soviet Analysis, Directorate of Intelligence, CIA, and the Deputy Director, DIA, before the Subcommittee.

China: Economic Performance in 1985Summary

In 1985, Beijing confronted numerous problems arising from the implementation of economic reforms. Poor weather and confusion surrounding new agricultural policies caused China's grain output to fall for the first time in five years. Industrial output, spurred by greater use of economic incentives and relaxed central controls, grew more rapidly than Beijing intended--worsening longstanding bottlenecks in the economy. Inflation, as measured by China's official price indices, tripled in 1985, while its balance of trade worsened sharply and its foreign exchange reserves declined.

Despite these problems, China's economy registered some significant gains in 1985. Energy output increased by over 8 percent, largely because of enhanced production incentives, increased state investment, and technology acquisitions. According to official statistics, despite inflation, workers experienced an improvement in their standard of living. Moreover, government revenues increased over 20 percent in 1985, and Beijing claimed success in narrowing its budget deficit.

At a national conference last September, the Chinese Communist Party formally made reform its primary economic goal for the five-year period beginning in 1986. Chinese leaders, however, recently announced that no major new reforms will be implemented this year. Beijing apparently intends to improve its control of the economy--using both indirect economic levers and administrative measures--before proceeding with key price reforms.

Agricultural Performance in 1985--Mixed Results

Since the economic reforms were launched in 1979, agriculture has been the centerpiece of Beijing's effort to improve economic efficiency by

introducing pragmatic, market-oriented policies into an ossified planning system. While agricultural reforms are still the single most important success of the reform program--agricultural output increased at an average annual rate of 11 percent from 1981 to 1984--growth rates fell in 1985. According to China's State Statistical Bureau, agricultural output--not counting the production of rural industries--increased only 3 percent last year.

After three consecutive years of record harvests, grain output fell 7 percent in 1985 (see Figure 1)--a result of reduced acreage, flood damage, and confusion over new reforms that eliminated grain quotas and replaced them with a market-oriented contract system. Rapidly developing rural industries also pulled peasants away from less lucrative grain production. Reform leaders maintain, however, that surpluses from previous years will more than make up for the shortfall.

Notwithstanding the lower harvest, China became a net grain exporter in 1985. According to Chinese trade data, China exported over 9 million metric tons of grain last year--almost triple the level in 1984. Chinese grain imports were approximately 5.4 million metric tons--with about 800 thousand metric tons coming from the United States (see Figure 2).

Efforts to diversify agricultural production were bolstered by officially sanctioned price hikes. Output of sugar cane, peanuts, and oilseeds each increased by more than 25 percent last year, according to Chinese statistics. Production of meat increased by 14 percent, and eggs by 23 percent. In a planned effort to reduce stockpiles, cotton production fell by more than a third.

Figure 1
China: Grain Production

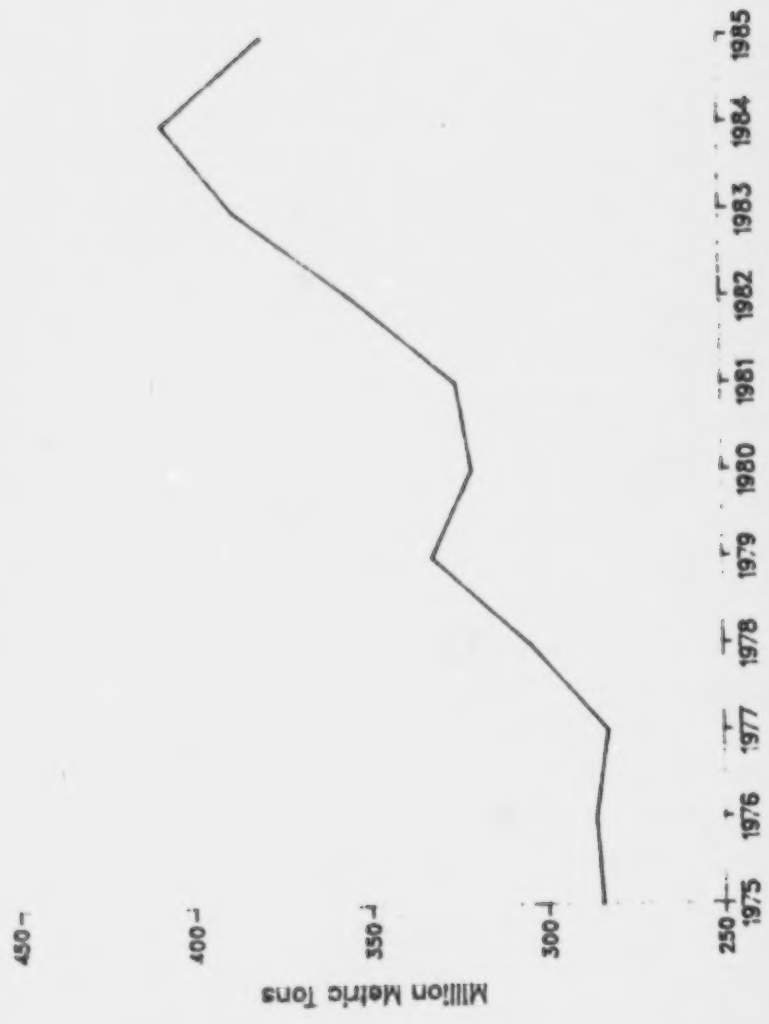
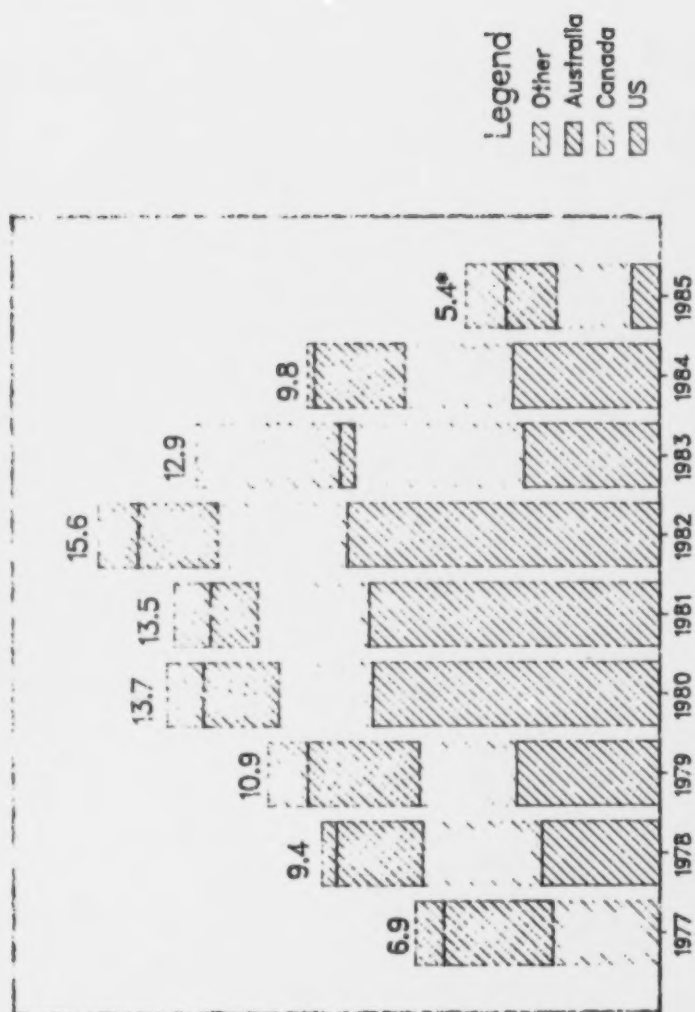


Figure 2
China: Imports of Grain,
by Source, 1977-1985



* Estimated.

Industrial Performance--Overly Rapid Growth

China's industrial output increased 18 percent last year, according to Chinese statistics. This continued a trend of double-digit growth in industrial production that began in 1983 and accelerated in the second half of 1984. During the first half of 1985, industrial output expanded at a 23-percent annual rate, but efforts to cool the economy reduced the growth rate to 10 percent by the end of the year (see Figures 3 and 4).

Rural industry was the most rapidly growing sector of China's economy in 1985. Chinese media reported that the output of rural factories shot up by 35 percent, and accounted for almost a third of total industrial production.

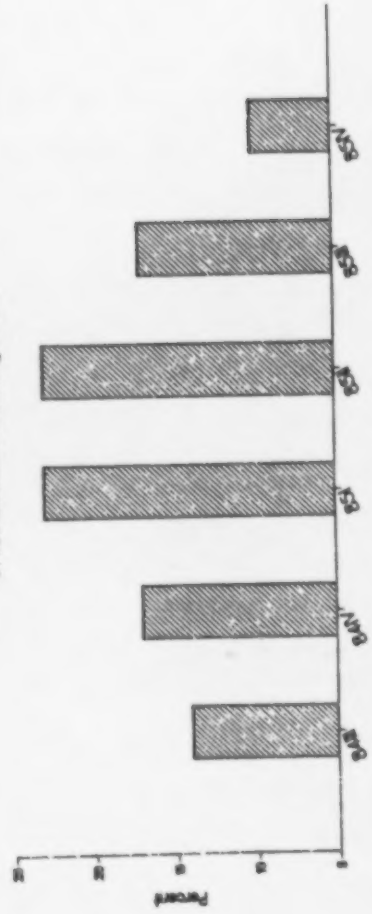
In light industry, buoyant consumer demand sustained a boom in the production of electrical home appliances. Output of washing machines, electric fans, and television sets increased over 50 percent, and production of refrigerators more than doubled. Output of building materials, heavy equipment, and machinery generally increased more than 15 percent during the year, while production of rolled steel increased about 9 percent.

Rapid industrial growth has been caused by skyrocketing investment spending--up by 35 percent in 1985--and a surge in wages and bonuses for industrial workers. Successful rural reforms have increased the availability of raw materials for industrial use, while boosting rural incomes and fueling consumer demand. Rapid industrial growth also has been facilitated by industrial reforms, particularly those allowing enterprises to sell overquota production at prices above the state-set levels. To a lesser extent, rapid growth last year was due to the technical modernization of some segments of Chinese industry.

Figure 1
China: Growth in Industrial Output



Figure 2
China: Growth in Industrial Output by Quarter
in Annualized Percentage Rate



Major Indicators

The mixture of strong economic growth and relaxed economic control was evident in China's principal economic indicators.

GNP. Real GNP grew approximately 11-12 percent last year, about the same as in 1984.

Inflation. Although output grew rapidly in 1985, it was not sufficient to meet the strong demand for consumer goods, equipment, and building materials, and demand pressures boosted prices. According to China's official retail price index, prices increased 8.8 percent, triple the rate in 1984.

Energy Production. China registered 8-9 percent increases in coal, oil, and electrical production last year. China is the world's second largest coal producer, with output topping 850 million tons in 1985. Recent gains in production have been due to policies that eased restrictions on private and collective small-scale mining operations and that permitted state mines to sell overquota production at free market prices.

China produced about 2.5 million barrels of oil per day, exporting a quarter of the total. Gains in oil production were due to new finds and improved recovery technologies. Increases in electric power generation largely came from completion of new coal-fired facilities and increased deliveries of coal to power plants.

Foreign Trade. Loosened central oversight of foreign trade and a surge in investment and consumer spending led to a flood of imports--up 54 percent last year according to Chinese customs data. Because of strong domestic demand, Chinese exports increased by less than 5 percent--leaving Beijing with a 1985 trade deficit of \$14.9 billion. Because of the deficit, China's foreign exchange reserves fell 25 percent between September 1984 and September 1985. According to Chinese statistics, in 1985 China used \$2.4 billion in

foreign loans and absorbed \$1.9 billion in direct foreign investment.

Government Budget. Strong industrial growth, rising prices, and increased tariffs on some imports pushed up government revenues by over 20 percent in 1985, despite media reports of widespread tax evasion. Although statistics on government spending have not yet been released, Chinese press reports indicate that Beijing believes the budget deficit was eliminated last year.

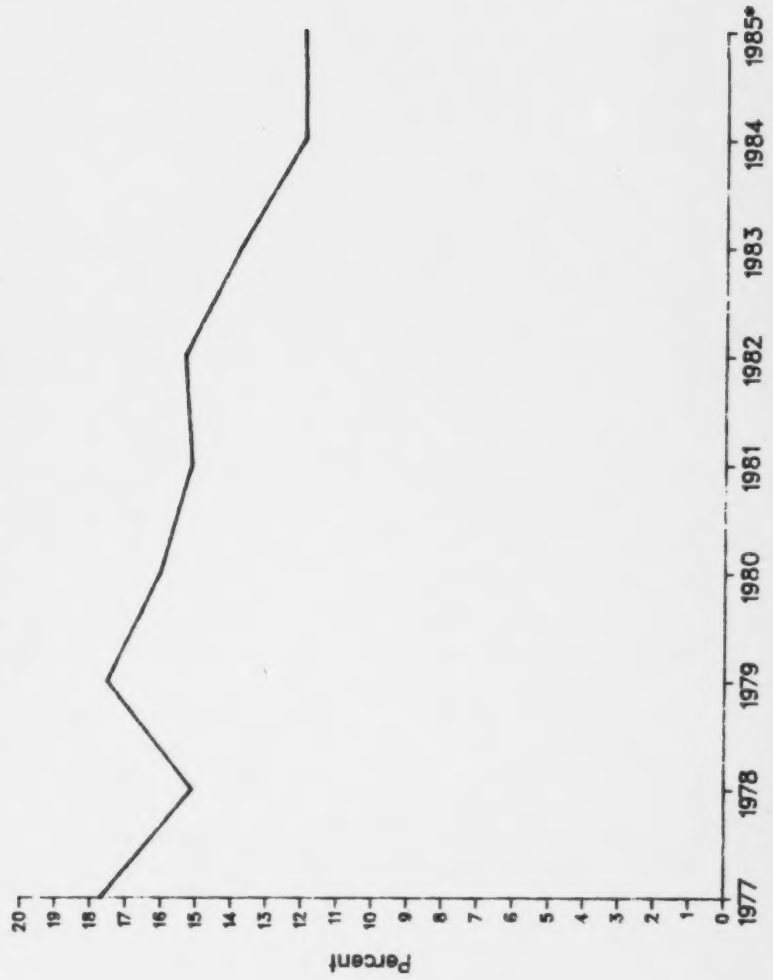
Defense Spending. Defense expenditures were budgeted to increase only 3.3 percent in nominal terms in 1985 to 18.67 billion yuan (\$5.83 billion at current exchange rates)--maintaining about a 12 percent proportion of total state expenditures. Spending for national defense is presented as a single line item in China's central budget, and there has been no official explanation as to its scope--the programs that the figures represent. Since 1979, defense spending has declined as a percent of total budget expenditures, reflecting the diminished priority given the defense sector under the economic reform program (see Figure 5).

Problems Associated with Rapid Growth

Beijing wrestled with a problem last year that, on the surface, is very unusual for a country at China's level of economic development--how to slow economic growth.

Despite the sharp increases in production of coal, oil, and electricity last year, energy supplies in China are strained. Additions to the transportation network have not kept pace with the growth in industrial output, and the system remains seriously overburdened. Chinese media report that factories still must suspend production occasionally because of shortages of electricity and delayed shipments of raw materials.

Figure 5
Announced Chinese Defense Expenditures
as Percent of Central Budget



Chinese media reports also suggest that key reform goals, such as improvements in industrial efficiency and product quality, are being undermined by the rapid growth. Beijing acknowledges that high output in some cases is caused not by efficiency gains but by the use of large amounts of inputs. A Hong Kong newspaper reported that losses by state-owned enterprises were up by over 9 percent during the first nine months last year. Press reports also suggest that rapid growth is wearing out equipment at excessive rates, increasing occupational hazards in factories, and generating higher levels of environmental pollution.

High output levels have been possible, in part, because China imported large amounts of raw materials. Imports of rolled steel last year, for example, were equivalent to one-half of China's total rolled steel production, yet China's industries experienced shortages of rolled steel and other raw materials. Beijing probably recognizes that its industrial development cannot be based on imports of raw materials and equipment, and that its foreign exchange holdings cannot sustain such high rates of growth.

Beijing counts on increased competition between state-owned enterprises to spur improvements in product quality. The shortages caused by strong demands for consumer goods and construction materials, however, have actually eased pressure on firms to maintain quality standards. Press reports emphasize that low product quality remains a serious problem throughout the economy.

Beijing probably is concerned that rising prices will jeopardize popular support for economic reforms. Although large increases in wages and bonuses have cushioned the impact of higher prices for some consumers, a jump in retail food prices has caused widespread complaints among urban residents, and

the rising cost of living apparently was a factor in student protests last fall.

Measures to Slow Growth

Beijing reacted quickly to data indicating the economy was overheating. After industrial output increased at a 23-percent annual rate during the first quarter of 1985, Beijing implemented a combination of market-oriented macroeconomic adjustments and administrative controls.

China's 1985 budget, announced in April, called for narrowing the budget deficit by slowing the growth of government spending. In particular, Beijing ordered a 10-percent cut in administrative expenditures. Beijing also began pursuing a tight money policy.

- In April, Beijing raised interest rates on time deposits and on loans for working funds. In August, it boosted rates on capital construction loans and again hiked time deposit rates.
- Lacking an established secondary market for government securities, China's banking system cannot conduct open market operations. Instead, Beijing reduces the money supply by increasing sales of goods from state-run stores. To soak up excess currency, Beijing set aside \$2 billion in foreign exchange reserves to be used to import scarce consumer durables, and the Ministry of Commerce was ordered to mark down prices of overstocked domestic commodities and increase sales to the public.

Many of the administrative controls were employed through China's banking system.

- China's central bank was ordered to set and enforce quarterly credit limits for its branches and the specialized banks (such as the Agricultural Bank and the Industrial and Commercial Bank).

- Banks were ordered to stop offering loans to inefficient enterprises and to firms that produce poor quality products for which there is little demand.
- Banks were prohibited from extending credit for capital construction projects whose spending exceeds the state quota or for projects not listed in the state plan.
- To prevent indiscriminate increases in wages and bonuses, enterprises were required to place wage funds in special accounts to be monitored by the banks.

Although industrial production has slowed since July 1985, recent statements by Chinese leaders suggest that Beijing remains very concerned with inflation, excessive investment spending, and its large trade deficit. Beijing probably will continue to tighten control over credit and capital construction this year.

Economic Reforms in 1985

The Third Plenum of the 12th Party Congress which met in October 1984 approved a general set of guidelines for expanding China's economic reform program to its urban areas. During the first half of 1985, Beijing announced initial steps toward price and wage reforms, while promoting increased autonomy for industrial enterprises. The first party document issued in 1985, however, signaled a new phase in China's agricultural reform program.

Second-Stage Agricultural Reforms

In 1985, Beijing implemented policies designed to broaden the influence of market forces on agriculture. Instead of setting mandatory purchase quotas for peasants to fulfill, the state now signs production contracts for grain (and cotton) with individual farmers. The contracted amounts generally are less than the previous quotas, and peasants are expected to sell surplus

production on the free market. The state has dropped its former commitment to purchase all overquota production at premium prices, and will now purchase excess grain only if the free market price falls below the set procurement price. In addition, the state no longer purchases nonstaple products such as vegetables, fruit, or meat--but state-owned marketing units in cities are being encouraged to sign contracts with peasants to improve supplies of nonstaples in urban areas. Finally, rural industry is being promoted to absorb some of the excess labor created by increasingly efficient agricultural production.

The new policies were designed to promote the development of a diversified agricultural sector and to encourage peasants to produce better quality products and make more efficient use of their land. The policies, however, probably elicited a stronger response than Beijing intended. Peasants were quick to switch to more profitable crops, such as oilseeds and vegetables. Strong consumer demand and readily available funds spurred the development of rural industries, and some peasants left their land idle to take jobs in industry. Much of the decrease in grain production in 1985 probably can be attributed to the new rural policies.

In recent months, reformers have bluntly defended the 1985 agricultural reforms against unnamed domestic critics--stating that the drop in grain output will not adversely affect the economy and highlighting the gains in production of cash crops and livestock and the important role that rural enterprises are playing. Nonetheless, agricultural policies for 1986 have been adjusted to boost grain production. Beijing has announced that it will increase state investment in agriculture and make available to peasants subsidized fertilizer and fuel. Generally, 1986 will be a year of "consolidation and digestion" of policies implemented last year.

Reforms of Enterprise Management

According to Chinese media, output has increased markedly in some factories in which managers have been given enhanced decisionmaking authority. The right to market overquota production seems to have been a particularly strong lever for increased efficiency and production. Chinese press reports, however, suggest that the implementation of increased enterprise autonomy has been uneven. Apparently, party officials and higher administrative units still make the important decisions in many factories. Other press reports indicate that many managers have taken advantage of their new authority by excessively increasing capital construction and randomly expanding wages and bonuses--two of the principal sources of economic instability in 1985. Chinese reformers are aware that the grant of autonomy is still onesided--managers have more flexibility in using enterprise revenues, but their decisionmaking is not yet disciplined by market forces. Beijing still subsidizes state enterprises that lose money, and experiments with enterprise bankruptcy laws have so far been limited, in part because the present system of irrational prices makes it difficult to determine which enterprises should be closed.

Price Reform

China's price system is irrational in that prices of many goods do not reflect relative market scarcities or the costs of production. State-set prices have been changed infrequently since the 1950s, and some goods are piled up in inventories while others are in chronic shortage. Within the next five years Beijing plans to establish a more rational, three-tiered price system. Prices of key products, such as coal and steel, will still be set by the state, but at levels that better reflect relative scarcities in the economy. Prices of many other products, including most manufactures, will

fluctuate in response to market conditions within bounds set by the state. Supply and demand alone will determine the prices of minor consumer goods--for instance, some clothing products, cosmetics, and vegetables--and over quota production of most industrial goods.

Beijing took a cautious approach to price reform in 1985. The key reform implemented was the removal of controls on retail prices of vegetables, meat, and other nonstaple farm products. Beijing also removed price controls on some consumer goods, and--to encourage greater use of highway transport--raised short-haul railroad rates for passengers and freight.

While Chinese media report that the reforms have prompted gains in efficiency, higher prices--particularly for food--have sparked widespread complaints. Because the planning system generally kept inflation low in the past, consumers and Chinese leaders are sensitive to price hikes. Reform leaders probably are concerned that if they relax price controls on additional products, the current excessive demands for consumer and investment goods would boost the inflation rate--so they have postponed major price reforms until after 1986. While maintaining price stability is the major goal this year, Beijing may implement some minor adjustments, such as widening price differentials for similar products of differing quality.

Wage Reforms

Chinese reformers, recognizing that Maoist egalitarianism corroded labor productivity, are encouraging enterprise managers to reward workers for superior skills and performance. Last year, some industrial enterprises, on a trial basis, were allowed to float their total wage funds upward or downward based on the amount of profits earned and the amount of taxes delivered to the state. In July 1985, Beijing announced a wage reform package for teachers and

government workers in which wages are to be based on the employee's position, seniority, and performance.

Wage reforms ran into serious snags last year. Unauthorized across-the-board wage hikes for factory workers contributed to inflation and undermined efforts to link remuneration to performance. Wage reforms for teachers and government workers fell almost a year behind the original timetable, delayed, probably, by budget concerns and reluctance to add to inflationary pressures.

Readjustment and Consolidation

Deng Xiaoping and other top Chinese leaders remain committed to reform, despite the economic dislocations in 1985. The economic problems, however, have forced Beijing to slow the pace of reforms.

In major speeches early this year, Chinese leaders called for a period of consolidation and adjustment in the reform program. Premier Zhao Ziyang stated recently that no major price reforms would be implemented in 1986, and in his speech to the national party conference in September 1985, he suggested that Beijing might need a two-year readjustment period to perfect macroeconomic control techniques. Chinese economic leaders probably realize that further price and wage reforms might be destabilizing in an inflationary economy, and that they must improve their ability to use indirect economic levers, such as taxes and interest rates, to regulate the economy. The two-year time frame mentioned by Premier Zhao probably is a guideline for the readjustment period. Beijing may move ahead with key reforms as soon as it is confident that capital construction is under control and that it has improved its economic regulatory mechanisms.

Senator PROXMIRE. Thank you, gentlemen. You certainly maintained the high standard, which as I said at the beginning, you've developed over the years. I am very grateful to you for the information you've given. It has been most helpful.

The subcommittee is adjourned.

[Whereupon, at 12:40 p.m., the subcommittee adjourned, subject to the call of the Chair.]

[The following information was subsequently supplied for the record:]

RESPONSE OF DOUGLAS MacEachin TO ADDITIONAL WRITTEN QUESTIONS POSED BY SENATOR PROXMIRE

HOUSE OF REPRESENTATIVES

DAVID R. GIBBY, WISCONSIN

Chairman

LEE H. HAMMOND, INDIANA

FLORIAN J. MITCHELL, MARYLAND

AUGUSTUS F. HANRAHAN, CALIFORNIA

JAMES H. SCHWENK, NEW YORK

FORTNEY H. PETE STARR, CALIFORNIA

CHAMBERS P. WYLLIE, OHIO

DANIEL E. LUNDGREN, CALIFORNIA

OLYMPIA J. SHAWNE, MAINE

BONNIE FIEDLER, CALIFORNIA

SCOTT L. LIT

EXECUTIVE DIRECTOR

Congress of the United States

JOINT ECONOMIC COMMITTEE

(CREATED PURSUANT TO SEC. 504 OF PUBLIC LAW 904, 95TH CONGRESS)

Washington, DC 20510

March 24, 1986

SENATE

JAMES A. ABRAHAM, SOUTH CAROLINA

Vice Chairman

WILLIAM V. BIRTH, JR., DELAWARE

STEVEN D. BYRNE, OHIO

MARK BATTINELLI, GEORGIA

ALFONSO M. D'AMATO, NEW YORK

PETE WILSON, CALIFORNIA

LLOYD BENTSEN, TEXAS

WILLIAM PROXMIRE, WISCONSIN

EDWARD M. KENNEDY, MASSACHUSETTS

PAUL S. BARNES, MARYLAND

HENRY J. TUCKER

DEPUTY DIRECTOR

Mr. Douglas MacEachin
Director of Soviet Analysis
Central Intelligence Agency
Washington, D.C. 20505

Dear Mr. MacEachin:

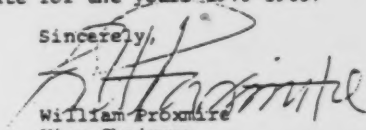
As I mentioned during the hearings on March 19, 1986, I have some written requests I would like you to respond to for the record, in addition to the requests I made during the hearing. I would like to have the responses in unclassified form. The requests are as follows:

1. Discuss the Soviet livestock feed dilemma and provide your projections of future Soviet grain import requirements worldwide and from the United States, compared with actual imports of recent years. Include in the discussion your assumptions about weather patterns.
2. Discuss Gorbachev's plans and recent government actions concerning changes in the industrial labor force and the extent to which it may be possible to offset slow growth in the labor supply by reducing underemployment. Address specific sectors of industrial production in your response.
3. Provide for the record a set of dollar and ruble comparisons of U.S. and Soviet defense spending for each of the years since 1965, based on the CIA's latest estimates.
4. Provide a list of the unit costs of Soviet weapons for items in current production. I would like this list to be as detailed as possible and to cover weapons in each of the categories contained in Table 1, "U.S. and U.S.S.R.: Procurement of Selected Weapons Systems, 1974-85," in your paper submitted with your testimony.
5. Were there differences at the Party Congress in the "threat assessments" of Gorbachev, Marshall Sokolov, and Police Chief Chebrekhov and, if so, what is their significance?

Mr. Douglas MacEachin
March 24, 1986
Page Two

6. What was the annual growth rate of military procurement prior to the slowdown that began in 1974?
7. What is the evidence showing greater inflation in the Soviet defense sector than in the overall economy, and what rates of inflation do you estimate for the years 1970-1985?

Sincerely,


William F. Proxmire
Vice Chairman
Subcommittee on Economic Resources,
Competitiveness, and Security
Economics

WP:rkt

Response of Douglas MacEachin

1. Discuss the Soviet livestock feed dilemma and provide your projections of future Soviet grain import requirements worldwide and from the United States, compared with actual imports of recent years. Include in the discussion your assumptions about weather patterns.

In large measure Soviet consumers will judge General Secretary Gorbachev's commitment to their well-being by his ability to put more meat on the table. Soviet meat production, however, has been constrained by chronic shortages of all types of animal feeds. Meat production has also suffered from a substantial imbalance among those feeds available--high protein feeds such as soybean, concentrates such as grain, and roughages. Because of a shortage of high protein feeds, for example, the Soviets do not effectively make use of feed grains. As a result of these shortages and the imbalances, Soviet livestock take twice as long to achieve market weight as those in the United States, while requiring 1.5 to 2 times as much feed to do so.

To increase the output of product per farm animal, Gorbachev has moved aggressively to implement initiatives emphasizing the use of roughages and protein in animal diets, providing the resources--including additional fertilizers--for increased production of these components, and enhancing feed quality by improving facilities for processing and storage of feeds. Because Moscow will make enough progress on these initiatives to result at least in larger supplies of better balanced feed per animal, productivity--meat per animal and milk per cow--should increase.

Nonetheless, under most scenarios, Western grain will still be needed to achieve the ambitious 1990 meat production goals. The amount of required grain will, as always, depend in large measure on weather conditions:

- Our most likely scenario is for average weather--conditions approximating those of 1970-84--and continuation of the recent trend

in fertilizer deliveries. Achieving 1990 meat production targets under these conditions would require some 40 million tons of grain imports--equal to the average annual quantity imported during 1981-85--even with increased quantities of feed per animal. A qualitative improvement in the composition of feed rations, however, could lower feed conversion ratios and reduce import demand to some 30-35 million tons.

- Very good weather--conditions approximating those of 1976-80--complemented by increased yields of grain and roughages from more fertilizer and accompanied by a reduction in the share of grain in feed rations could totally obviate the need for Western grain imports.
- Poor weather during the period--conditions approximating those during 1961-65--particularly if accompanied by failure to increase fertilizer supplies, would force Moscow to cut back on its meat production goals. Hard currency constraints alone would preclude importing the quantities of grain needed to offset domestic production shortfalls.

The USSR's grain import behavior over the past few years indicates that Moscow considers the United States to be the residual grain supplier. It is likely that the United States will continue to be the supplier of last resort. Increased production by other grain producers combined with their aggressive marketing suggests that these countries could easily supply some 20-25 million tons of grain annually, and larger quantities in good years, to the USSR. In years of very large Soviet imports, however, the United States will continue to play a major role, supplying perhaps as much as 20 million tons.

2. Discuss Gorbachev's plans and recent government actions concerning changes in the industrial labor force and the extent to which it may be possible to offset slow growth in the labor supply by reducing underemployment.

The Gorbachev regime has announced a number of plans and actions aimed at increasing the efficiency of the work force with the hope of offsetting the slow growth in labor supply. The strategy centers on gains achieved through "human factors" (reducing corruption and alcoholism, increasing labor discipline, rejuvenating managerial deadwood in the economic bureaucracy), organizational changes, and assimilation of new machinery and equipment.

Prime Minister Ryzhkov claims that substituting capital for labor, particularly in relatively low technology functions that employ large numbers of manual workers, would have an impact equivalent to adding 20 million workers to the labor force by 1990. Although such large numbers are not in the realm of reality, even partial success in this program would provide relief. In short, with an actual increment of about 3.2 million expected during 1986-90, this could be a major source of economic growth. However, the Soviets have no established mechanism for redistributing personnel if large numbers of manual workers are released. The responsibility for retraining displaced workers and finding them new jobs is unclear, and the tendency for enterprise managers to maintain a large reserve of workers shows no sign of abating.

Moreover, virtually all the measures announced in the past two years regarding labor utilization are variations of strategies that have been tried previously. During experimental phases, these measures have met with limited success, but have fallen short when implementation has been expanded. Nevertheless, they could contribute marginally to increases in productivity, at least in the short-run.

Regulations for the certification of work positions in industry were announced in 1985. This decree, which calls for enterprises to conduct a survey and evaluation of the use of labor and equipment, is aimed at reducing the artificially high demand for labor and accelerating the retirement of obsolete equipment. Successful, but limited application of the certification procedure has prompted Moscow to expand it to all productive sectors of the economy over the next two years. The results of the certification will be forwarded to local planning officials to be used in drawing up regional balances of labor supply and demand.

The regime's commitment to the brigade form of labor organization and to the concept of collective contract has been extended economy-wide in the 12th Five-Year Plan from the initial application to machinery workers in 1979. Labor brigades are small groups of workers that are assigned resources and tasks according to a contract with enterprise management. The arrangement is touted as an effective way to raise productivity by improving planning and management, reducing production times, and enforcing labor discipline on lax workers through group pressure. It calls for distribution of bonus payments on the basis of the brigade's performance and individual productivity, rather than on the basis of an individual's wage rate. Even though more than 60 percent of industrial workers have been organized into brigades, most brigades exist in name only and have not been integrated into actual production. A key reason for their limited use appears to be opposition by ministerial and working-level managers, who see the contractual arrangements of the system as diluting their authority over workers.

An increase in pay for scientists, designers, and engineers will go into effect this year. Considering the regime's expressed concern regarding the application of scientific research for the economy, a pay scale revision for

scientific workers is overdue (the last one was in 1957). Provisions in the resolution give management greater flexibility in promoting and financially rewarding productive workers. It represents an effort to enhance the prestige of the engineering profession which has declined in recent years.

The education reform of 1984 increases labor training for secondary school students. The share of students enrolled in vocational-technical schools will increase while the proportion of college-bound students will decline. This should boost the number of those entering the labor force at an earlier age, and intensive training should improve their efficiency on the job. The occupational training mix in vocational-technical schools is also slated for change as more sophisticated equipment and machinery are introduced as part of the modernization effort.

However, Gorbachev's efforts to raise productivity will be short-circuited if the regime does not increase incentives for workers in the form of quality goods and services. But more resources for this purpose do not seem to be in the offing, given the investment allocations already announced.

3. Provide for the record a set of dollar and ruble comparisons of US and Soviet defense spending for each of the years since 1965, based on CIA's latest estimates.

Dollar Cost Comparisons

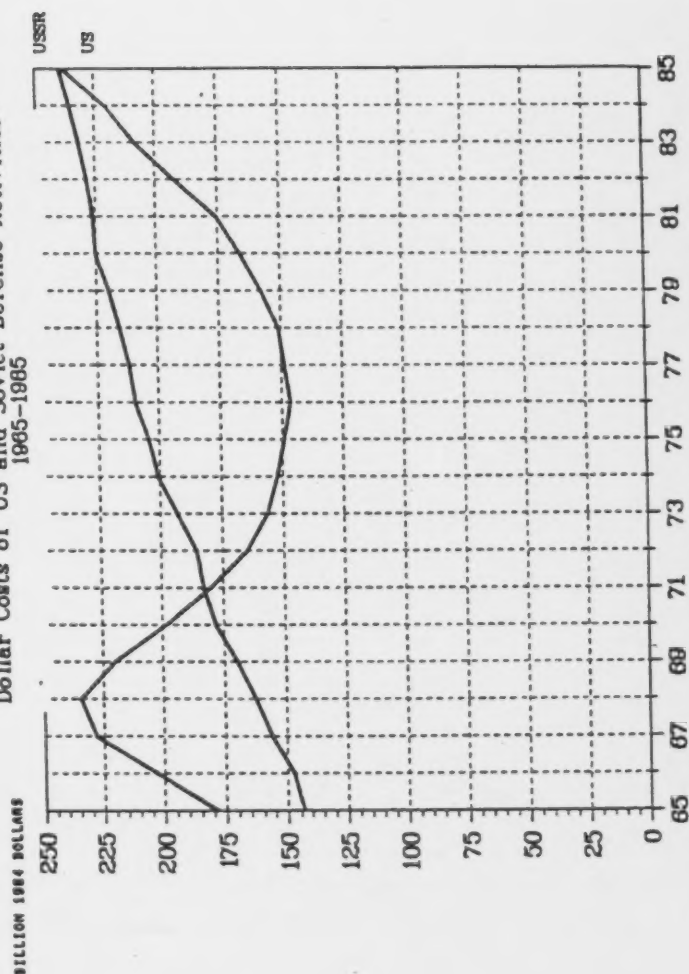
The costs of Soviet defense activities, as measured in constant 1984 dollars, exceeded those of the US over the 1965-85 period for most resource categories and missions (see attached chart).

- The cumulative costs of overall Soviet defense activities were about 10 percent greater than comparable US outlays.
- The cumulative costs of Soviet investment (i.e., military procurement and construction) were 30 percent greater than US investment outlays due to the much larger quantity of weapons and other equipment produced.
- The cumulative costs of Soviet RDT&E were more than 10 percent greater than US RDT&E outlays.
- The cumulative costs of Soviet operating activities were slightly less -- by 3 percent -- than US expenditures for these activities.
- The cumulative costs (excluding RDT&E) of Soviet strategic forces were about 2.5 times greater than US strategic outlays. For general purpose forces, cumulative Soviet costs were 15 percent greater than US outlays.

Comparisons on a year-by-year basis since 1976 show that while the cumulative dollar value of Soviet defense activities over the past 10 years exceeded comparable US outlays by 25 percent, the cost gap between the two, which in 1976 favored the USSR in all major resource categories and missions, has decreased. In 1985, for the first time since 1971, the dollar costs of Soviet activities did not substantially exceed US outlays.

This narrowing of the cost gap has resulted from markedly different trends in the two countries, particularly in procurement costs.

Dollar Costs of US and Soviet Defense Activities¹
1965-1985



1. US defense activities and their Soviet counterparts include National Security programs funded by the Department of Defense, defense-related nuclear programs funded by the Department of Energy, Selective Service activities, and the defense-related activities of the Coast Guard. Excluded from the comparisons are all the costs of military retirements and veterans programs, Soviet space programs that in the US would be funded by the National Aeronautics and Space Administration, military assistance and foreign military sales, civil defense programs, Soviet Internal Security Troops, and Soviet Railroad and Construction Troops.

- US military procurement more than doubled over the 1976-85 period, growing on average about 11 percent a year. Growth was particularly rapid after 1980 when military procurement climbed by more than 13 percent a year.
- Soviet military procurement, on the other hand, leveled off after 1974 following dramatic increases in the late 1960s and early 1970s.

Although the dollar valuations of Soviet procurement have shown almost no growth since 1975, they have remained at a relatively high level -- about 60 billion dollars annually -- and have exceeded comparable US outlays during eight of the last 10 years. By maintaining their weapons procurement at this level, the Soviets were able to produce significantly more weapons than the United States in almost every major category. In contrast, the United States emphasized the purchase of fewer weapons that individually were more capable and more costly than Soviet equipment. The US also devoted an increasing share of its procurement outlays to improving both combat readiness and sustainability by increasing war reserve stockpiles of munitions and spare parts.

Ruble Comparisons

CIA supplements its primary comparison of US and Soviet defense activities in dollars with a comparison in rubles. We recognize that in such a cross-national comparison, it is valid to use either dollars or rubles as the common measure. Ruble comparisons, like dollar comparisons, provide an economic measure of the resources devoted to US and Soviet defense activities. The results each produce are different, but nonetheless both are equally valid.

Because of the data limitations and the difficulties in making these estimates, we have much less confidence in our ruble estimates of US defense activities and make them only periodically. We have recently updated our estimates of Soviet defense spending on rubles to 1982 prices, however, and are currently in the process of comparing US and Soviet defense activities in rubles. When completed, we would be happy to share the results with the Committee.

4. Provide a detailed list of the unit costs of Soviet weapons for items in current production covering the weapons in each of the categories contained in Table 1, "US and USSR: Procurement of Selected Weapon Systems, 1974-85" in the paper submitted with your testimony. (U)

We are reluctant to release unit price information because of the strong potential that exists for its inadvertant misuse. Unit prices vary considerably because they depend on the size of the production run. Comparisons of relative unit prices can thus be quite misleading out of context. The unit price also depends on what is included in the "unit." CIA unit costs are not, in general, directly comparable with other published costs because of definitional differences. For your information, however, we are presenting the values associated with the procurement of selected weapons systems during 1981-85 that was shown in Table 3.

USSR: Procurement of Selected Weapon Classes

<u>Weapon Class</u>	<u>Estimated Production 1981-85^a</u>	<u>Estimated Cost (billion 1984 dollars)</u>
ICBMs/SLBMs	800	11.1
Submarines	40	23.9
Tanks	12,500	11.2
Fighter aircraft	2,400	30.0
Helicopters	2,500	6.1
Strategic bombers	200	7.3

^a Production figures from Table 3, p. 25 in joint CIA/DIA paper submitted to the JEC, The Soviet Economy Under a New Leader, 19 March 1986.

5. Were there differences at the Party Congress in the "threat assessments" of Gorbachev, Marshall Sokolov, and Police Chief Chebrekhov and, if so, what is their significance?

(Security deletion.)

6. What was the annual growth rate of military procurement prior to the slowdown that began in 1974?

Between 1965 and 1974, Soviet military procurement grew at approximately five percent per year, as measured in 1982 constant rubles. Rising procurement of ships and missiles was the primary source of this relatively high rate of growth.

7. What is the evidence showing greater inflation in the Soviet defense sector than in the overall economy, and what rates of inflation do you estimate for the years 1970-1985?

(Security deletion.)

HOUSE OF REPRESENTATIVES

DAVID D. JOSEPH WISCONSIN
CHAI MAN
LEE H. HAMILTON INDIANA
FARRIN J. MITCHELL MARYLAND
AUGUSTUS P. HAWKINS CALIFORNIA
JAMES H. SCHEUER NEW YORK
FORTNEY H. PETE STARR CALIFORNIA
CHALMERS F. WYLE OHIO
DANIEL E. LUNGREN CALIFORNIA
OLYMPIA J. SNOWE MAINE
BOBBY FIEDLER CALIFORNIA

SCOTT LILLY
EXECUTIVE DIRECTOR

Congress of the United States

JOINT ECONOMIC COMMITTEE

(CREATED PURSUANT TO SEC. 914 OF PUBLIC LAW 304, 78TH CONGRESS)

Washington, DC 20510

May 23, 1986

SEN.

JAMES ABONOR SOUTH DAKOTA
VICE CHAIRMAN
WILLIAM V. ROTH JR. DELAWARE
STEVEN D. SYMMES IDAHO
MACK MATTINGLY GEORGIA
ALFONSE M. DAMATO NEW YORK
PETE WILSON CALIFORNIA
LLOYD BENTSEN TEXAS
WILLIAM PROXMIRE WISCONSIN
EDWARD M. KENNEDY MASSACHUSETTS
PAUL S. SARBANES MARYLAND

ROBERT J. TOSTERUD
DEPUTY DIRECTOR

Mr. William J. Casey
Director
Central Intelligence Agency
Washington, D. C. 20505

Dear Mr. Casey:

The purpose of this letter is to request that certain information about Soviet weapons production be made available on an unclassified basis, just as it has been in the recent past.

The Joint Economic Committee recently concluded our annual hearings on the Allocation of Resources in the Soviet Union and China. Included in the materials submitted for the hearings are tables showing production quantities of 30 types of Soviet military equipment on an annual basis for the years 1974-85. The tables are classified.

In the past hearings, we have been provided with the same information for 26 types of Soviet weapons on an unclassified basis. Enclosed are copies of tables 10-13, submitted to the Committee by DIA in 1982. The tables cover Soviet production of Ground Force material missiles, aircraft, and ships for each of the years 1977-81.

Similar information about Soviet weapons production is contained in the DOD annual publication, Soviet Military Power. The 1986 edition includes tables covering the same categories of weapons. However, only 22 types of weapons are shown and for only a three-year period, 1983-85. In addition, some of the totals in the DOD publication do not agree with the information I have received and may have been compiled on a different basis.

I would like to have the data for the 26 types for each of the years 1974-85. This would give us the same kind of information in the same format as has been provided in the past.

Of course, the classified tables show both CIA and DIA estimates. I am not asking that this comparison be declassified. It would be acceptable for the tables to show composite figures of the two agencies, or the estimates of one or the other.

Sincerely,

/S/

William Proxmire
U.S.S.

WP:rkj
Enclosures

(Enclosures to Senator Proxmire's
letter.)3. SOVIET MILITARY RESOURCE TRENDSa. Military Production Capabilities

The Soviet military industrial base is by far the world's largest in number of facilities and physical size. The Soviet Union produces more individual systems in greater quantities than any other nation.

The Soviet industry has grown steadily and consistently over the past 20-25 years. Its physical growth and the commitment of large quantities of financial and human resources is its most dynamic aspect, but its cyclical production is its most important. Production plants appear to be continually active, suggesting that as old weapons programs are phased out, new ones are begun, leaving no down times or long periods of layoffs and inactivity. The cyclical process, the continuing facility growth, and the high rates of production keep the arms industry in a high state of readiness to meet any contingency.

Table 10

Soviet Ground Force Materiel Production

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Tanks	2,500	2,500	3,000	3,000	2,000
Other Armored Vehicles	4,500	5,500	5,500	5,500	4,500
SP Field Artillery	950	850	250	150	200
Towed Field Artillery	1,300	1,500	1,500	1,300	1,500
Multiple Rocket Launchers	550	550	450	300	400
SP AA Artillery	300	300	300	200	200
Towed AA Artillery	250	100	--	--	--
Infantry Weapons (thousands)	350	450	450	400	400

Table 11

Soviet Missile Production

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
ICBMs	300	200	200	200	200
IRBMs	100	100	100	100	100
SRBMs	200	250	300	300	300
SLCMs	600	600	700	700	750
SLBMs	175	225	175	175	175
ASMs	1,500	1,500	1,500	1,500	1,500
SAMs	50,000	50,000	50,000	50,000	53,500
ATGMs	35,000	35,000	40,000	50,000	60,000

Table 12

Soviet Aircraft Production

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Bombers	30	30	30	30	30
Fighters/Fighter-Bombers	1,200	1,300	1,300	1,300	1,350
Transports	400	400	400	400	400
Trainers	50	50	25	25	25
Helicopters	900	650	700	750	750
Communications/Utility	100	100	100	100	25

Table 13

Soviet Naval Ship Construction

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Submarines	12	13	12	13	10
Major Combatants	12	11	11	11	9
Minor Combatants	52	51	53	65	44
Auxiliaries	6	4	7	8	4

b. Military Exports and Assistance

During 1977-81, some \$35 billion worth of Soviet military equipment was delivered. The Near East and South Asian countries were the main recipients with 74 percent of the total. The rapid increase in arms transfers during this period can be attributed to: the new Arab wealth following the rise in oil prices in 1973 and 1974; the sale of more sophisticated equipment such as MiG-23 and MiG-25 jet fighters, IL-76 transports, Mi-24 combat helicopters, surface-to-air missile systems, T-62 and T-72 medium tanks; and, higher Soviet prices.

Table 14

Soviet Military Deliveries by Area, 1954-1981
(millions of US dollars)

East Asia and Pacific	11,410
Latin America	3,890
Near East and South Asia	42,380
Africa	5,000
Third World	62,680

Central Intelligence Agency



Washington, D.C. 20505

13 June 1986

The Honorable William Proxmire
Vice Chairman
Subcommittee on Economic Resources,
Competitiveness, and Security Economics
Joint Economic Committee
Washington, D.C. 20510

Dear Mr. Vice Chairman:

In your letter of 23 May, you asked that annual data on Soviet weapons production be made available to the Joint Economic Committee on an unclassified basis.

As we indicated in our March testimony, the Intelligence Community has completed the first round of review of these production estimates and the results have been published. Another round covering additional categories of production is now under way. From now on, the figures on Soviet weapons production used in intelligence reports will reflect the results of this Community process.

I believe that the Community's year-to-year production estimates should not be declassified at levels more disaggregated than we provided in our testimony this year. They represent the latest Community views based on an exhaustive review of all-source intelligence. To declassify them at the level of detail that you request would unnecessarily provide the Soviet Union with information on the accuracy of our intelligence and the areas of our uncertainty. In addition, by comparing year-to-year changes in the estimates, the Soviets could isolate areas in which our intelligence capabilities have improved or have been degraded by Soviet denial programs.

We, of course, will continue to provide our estimates on a classified basis to your Committee. I hope that this arrangement will meet your requirements.

Sincerely,

A handwritten signature in dark ink, appearing to read "W. J. Casey".

William J. Casey
Director of Central Intelligence

○